



Australian Government

Australian Transport Safety Bureau

### Chief Commissioner's message

Earlier this year the ATSB engaged an independent market research agency to undertake research with our key industry stakeholders.

The aim of the research was to get feedback on where we are going well, where we could do better and how we could improve the way we communicate key safety messages.

The research comprised one-on-one interviews, mini focus groups and an online survey with more than 700 people.

The results presented some interesting findings which were mostly consistent across all three transport modes.

Overall I was pleased to discover that the majority of respondents thought the ATSB is performing well. In fact 86 per cent of stakeholders who have had dealings with the ATSB rated our performance, based on direct personal experiences, as good or better.

However, our stakeholders also identified areas that we need to improve. In particular, timeliness of completing investigations and communicating the status of investigations were the areas that rated lowest in terms of overall performance at 49 per cent.

There was also a view, particularly outside specialised safety areas of transport operators, that we needed to be better at communicating the safety messages coming out of our investigations and research.

Timeliness and communication are two areas we are committed to improving. By setting new performance benchmarks and undertaking greater planned communication activity, we will better meet industry's expectations.

The survey findings will now be used to develop an ATSB communication and education strategy. The research results will also form a benchmark for further stakeholder research planned for July 2011.

I thank everyone who participated in the survey and encourage you to continue providing feedback. Your ideas and suggestions help us improve our business of advancing transport safety in Australia.

Martin Dolan  
Chief Commissioner



# The Australian A



## ATSB supporting aviation safety in PNG and the region

One of the ATSB's core responsibilities is helping to promote aviation safety, not just in Australia, but throughout the region. The benefits are many – many countries lack the capability to investigate anything other than major accidents; they simply do not have the resources to investigate serious incidents.

In addition, encouraging a culture of safety feeds back to us, ensuring Australia keeps its aviation standards at their highest. Finally, Australians are enthusiastic and adventurous travellers, and are likely to be flying in neighbouring countries. It's in their interests to do it safely. Recently, the ATSB has been taking major steps in working with Australia's closest neighbour, Papua New Guinea.



After the crash of a Twin Otter aircraft P2-MCB near Kokoda on 11 August 2009, in which nine Australians died, the Papua New Guinea (PNG) Accident Investigation Commission (AIC) formally requested that the ATSB assist them with their investigation. These sorts of collaborations are specifically provided for under Annex 13 of the Convention on International Civil Aviation. ATSB investigators worked alongside AIC staff on site in PNG, and AIC staff have subsequently travelled to Canberra for further discussions related to the investigation. The ATSB has provided investigator support, information and technical advice and facilities support. The AIC expects to release the report by the end of the year.

Recently, a team of ATSB investigators flew to Misima Island in PNG to assist the AIC with their investigation into an accident that took place on 31 August, 2010. A Cessna Citation aircraft apparently overran the runway on landing, impacting with trees. The aircraft caught fire and burned, with four of the five people on board perishing. The AIC investigation is continuing, and the ATSB is working closely with PNG officials to assist where possible. The ATSB is assisting the Australian next-of-kin.

The ATSB's assistance to PNG is managed under a Transport Safety Investigation Annex to the Memorandum of Understanding (MOU) between Australia and Papua New Guinea on Cooperation in the Transport Sector. The Annex was signed by the ATSB and AIC on 13 November 2009. Both agencies are committed to enhancing the capabilities of their investigators, and the heads of the agencies have recently discussed how to work together even more effectively to build the region's capacity for aviation safety. ■

# Aviation Safety Investigator



## Improve your odds

**F**orty-four per cent of all aviation accidents and over half of the fatal accidents between 1999 and 2008 were attributed to private operations. These figures are even more disturbing when you consider that private operations represent less than 15 per cent of the hours flown in that decade.

The ATSB has released a Research and Analysis Report, *Improving the odds: Trends in fatal and non-fatal accidents in private flying operations*, which identifies some of the underlying causes of the poor safety performance in this sector. The report is available from the ATSB website.

The report also identifies the factors contributing to fatal accidents in private operations and how these factors differed from non-fatal accidents. Three occurrence types accounted for the majority of fatal accidents: collision with terrain (90%); loss of control (44%); and wirestrikes (12%). When all incidents and accidents are taken into account, the likelihood of being killed was about 36 per cent for a collision with terrain occurrence, 30 per cent for loss of control occurrences, and about 50 per cent for a wirestrike. For non-fatal accidents, there was greater variability in the common occurrence types – forced landings, hard landings, problems with the landing gear, and total power loss/ engine failure were also common.

Problems with pilots' judgement and planning were identified as contributing factors in about half of fatal accidents in

private operations, and about a quarter involved problems with aircraft handling. Other contributing factors associated with fatal accidents were visibility, turbulence, pilot motivation and attitude, spatial disorientation, and monitoring and checking. Non-fatal accidents were just as likely to involve aircraft handling problems, but had fewer contributing factors than fatal accidents.

Action errors and decision errors were both common to fatal accidents.



Violations, while less frequently found, were mostly associated with fatal accidents.

In light of the contributing factors associated with fatal accidents in private operations, the report provides advice to pilots for improving the odds of a safe flight.

Pilots are encouraged to make decisions before the flight, continually assess the flight conditions (particularly weather conditions), evaluate the effectiveness of their plans, set personal minimums, assess their fitness to fly, set passenger expectations by making safety the primary goal, and to seek local knowledge

of the route and destination as part of their pre-flight planning. Also, becoming familiar with the aircraft's systems, controls and limitations may alleviate poor aircraft handling during non-normal flight conditions.

Some ideas to consider when assessing and planning your flight include:

Make decisions pre-flight

- decide how you will deal with likely threats and errors as part of your pre-flight planning (and don't

forget to discuss these with your copilot if you have one)

Seek local knowledge

- Before the flight, seek out local knowledge (of the weather and terrain for example) on the routes and destination

Set personal minimums

- Know your personal minimums for deciding if and under what conditions to fly or to continue flying based on your knowledge, skills and experience.

- Take into account the terrain, weather, external pressures, the aircraft's

performance limitations and any limitations you may bring to the flight (for example, stress and inexperience).

Finally, pilots need to be vigilant about following the rules and regulations that are in place – they are there to trap errors made before and during flight. Ignoring these regulations only removes these 'safety buffers'.

A checklist for establishing your personal minimums can be found on the Civil Aviation Safety Authority's (CASA's) website. ■

ATSB investigation report AR-2008-045

# Investigation briefs

## Robinson helicopter training to be reviewed

ATSB Investigation AO-2009-032

An ATSB investigation into a fatal helicopter accident has prompted CASA to review the requirements for initial pilot training and endorsement and recurrent training on Robinson R22 helicopters. This includes a review of the Helicopter Flight Instructor's Manual to ensure that the required competencies are being covered by flight instructors and trained to students.



The accident occurred on 2 July 2009 when the pilot of a Robinson Helicopter Company R22 Beta II, was carrying out solo circuit training at the Gold Coast Aerodrome. Witnesses saw the helicopter climbing, followed by a rolling motion that progressed into an exaggerated rolling and pitching movement. A piece of the helicopter separated from the aircraft, with the helicopter rotating a number of times before descending almost vertically into trees.

Investigators found no evidence of any mechanical problem with the helicopter, and the weather conditions had been fine. The post-mortem found no evidence of any medical condition that may have affected the pilot's performance. The investigation concluded that over or mal control by a pilot more accustomed to aeroplanes than helicopters was the most likely precursor to the accident. In addition, the investigation found that one of the pilot's instructors had an expired rating.

Since the accident, the helicopter operator has made a number of changes to their induction process, which includes the recording of instructors' ratings and their respective validity periods. ■

## Maintenance not just by the book

ATSB Investigation AO-2009-053

The ATSB encourages operators and maintenance personnel to consider all available information relating to the history and performance of aircraft components and systems when planning maintenance activity. Manufacturers' service bulletins and communications only form a part of an aircraft's information. They should not be used to the exclusion of other knowledge, such as operational history and world-wide fleet experience. The ATSB issued a Safety Advisory Notice, encouraging operators of CFM56-7 and CFM56-5 engines to review their procedures after a Boeing 737-8BK experienced issues with one of its engines.

The incident took place on 20 August 2009, during a scheduled passenger service. The aircraft departed Launceston for Sydney when several loud bangs were heard from the left engine, consistent with a compressor surge. The left engine was reduced to flight idle and the aircraft returned to land at Launceston.

The compressor surge and damage to the engine was found to be the result of advanced variable stator vane bushing/shroud wear.

The manufacturer was aware of the engine's propensity for inner bushing wear and had previously released a number of service bulletins to eliminate the issue. The bulletins specified inspection requirements for detecting bushing wear and advised of the availability of an improved bushing.

While the operator incorporated the service bulletins into their inspection and maintenance program, the 20 August event occurred before the engine had reached the recommended date for inspection.

Since the occurrence, the manufacturer and operator have taken steps to address the safety issue and the ATSB will continue to monitor the issue. ■

## Aileron servo fault rectified

ATSB Investigation AO-2009-021

A manufacturer has modified its assembly practices after an ATSB investigation identified the source of vibrations in an Airbus Industrie A320-232. The investigation also found an identical fault had occurred to the same aircraft eight months before the incident. This had not been reported to the ATSB despite the requirements of the *Transport Safety Investigation Act 2003*.

The aircraft, departed from Mackay, Queensland on 18 May 2009. Operating on a regular public transport flight, and destined for Melbourne, the aircraft had 125 passengers, four cabin crew and two flight crew on board. It was established in the cruise at Flight Level 350 when a light continuous vibration manifested within the aircraft. Cockpit indications showed that the left aileron was oscillating. Shortly after, the cabin manager reported to the pilot in command that there was 'quite a bit of shaking' at the rear of the aircraft. The crew diverted the aircraft to the Gold Coast Aerodrome and landed, with the vibrations intensifying during part of the descent.

The source of the aileron oscillation was found to be an internal fault in one of the left aileron's hydraulic servos. The fault occurred during manufacture by an incorrect adjustment of the servo, which caused internal wear in a number of the servo's hydraulic control components. The aileron servo manufacturer has since incorporated a new method of adjusting the aileron servos during assembly to minimise the likelihood of the problem reoccurring.

In addition, the operator has improved the training of its staff and the reportable event requirements in its safety management system manual in an effort to address the non-reporting risk. ■



# Who cares if stuff happens?

**T**he ATSB does! We know problems happen. In an industry like aviation, there are always going to be problems – mechanical problems, people problems, problems with the weather. When an aviation problem (or incident) happens then, by law, it most likely needs to be notified to the Australian Transport Safety Bureau.

‘We get around 15,000 notifications a year,’ says Ethan Eastman, ‘and that includes everything.’ Ethan is the supervisor for the ATSB’s aviation notifications team. He and his team of five are called upon to assess and classify any notifications that come in. And they *do* come in. Every day, dozens of faxes, letters, phone calls and emails flow into the Canberra office, alerting the ATSB of incidents, accidents and general problems. These notifications run the gamut of seriousness, ranging from minor breaches of protocols, somebody crushing a lizard on a runway, to a collision with terrain involving multiple fatalities.

Of the 15,000-odd notifications that come to the ATSB, about 8,000 are classified as safety occurrences and entered into the database. Those that don’t make the cut are usually duplicate-reports on the same occurrence from different sources, or they describe things that aren’t assessed as a transport safety matter. The 8,000 that actually do constitute safety matters are reviewed, and any that warrant closer review are forwarded to investigators.

Depending on the circumstances, about 100 will be investigated each year.

Periodically, people will wonder why a particular accident or incident is not being investigated – particularly if someone has died. However, the ATSB isn’t budgeted to investigate everything. Investigations have to be selective. The ATSB investigates events that are likely to yield the biggest safety benefit and provide important safety messages.

“Anyone who is ‘a responsible person’, as defined in the regulations, is required to notify a ‘reportable matter’”

This is not to say, however, that a notification is of no use if the ATSB does not investigate it. Those thousands of occurrences (around 243,000 since 1969) create a vivid and useful portrait of aviation safety in Australia. Investigators and researchers use it to identify patterns and trends. The ATSB also receives many requests each year from the media and researchers (both private and professional) for details and figures of accidents and incidents.

So what exactly needs to be reported? And who needs to report it?

“Anyone who is ‘a responsible person’, as defined in the regulations (see below),

is required to notify the ATSB of a ‘reportable matter,’” explains Ethan. The regulations in question are the Transport Safety Investigation Regulations 2003. While not waiting room fare, they do provide a definition for who constitutes a ‘responsible person.’ If you fit the criteria for being a ‘responsible person’, then it may pay you to acquaint yourself more fully with what you are obliged to tell the ATSB about, and when. If you know that the incident has already been reported, it doesn’t need to be reported again, but it *is* your responsibility to make sure that the ATSB has been notified. And it is important that the notification reports are as accurate as you can make them. Submitting deliberately false or misleading information is actually a serious criminal offence under the Criminal Code. In fact, aiding, abetting, counselling, procuring or urging the submission of false or misleading information is also a serious offence. Some of the requirements may seem like more trouble than they’re worth. Some of the reportable matters on their own may seem insignificant. But the occurrence reports all provide important insights into the health of the aviation system. They could also prove vital for our understanding of aviation safety issues, and how to address them. They could prove vital for our understanding of aviation safety, and how to improve it. ■

## Who has to notify the ATSB? Do you?

The following persons are responsible persons in relation to reportable matters:

- a) a crew member of the aircraft concerned
- b) the owner or operator of the aircraft
- c) a person performing an air traffic control service in relation to the aircraft
- d) a person performing a dedicated aerodrome rescue or firefighting service in relation to the aircraft
- e) a person who
  - a. Is licensed as an aircraft maintenance engineer under the Civil Aviation Regulations 1988 or the Civil Aviation Safety Regulations 1998; and
  - b. Does any work in relation to the aircraft
- f) a member of the ground handling crew in relation to the aircraft
- g) a member of the staff of the Civil Aviation Safety Authority
- h) the operator of an aerodrome

-Transport Safety Investigation Regulations 2003 (available in full at <[www.atsb.gov.au](http://www.atsb.gov.au)>)

# REPCON briefs

## Australia's voluntary confidential aviation reporting scheme

REPCON allows any person who has an aviation safety concern to report it to the ATSB confidentially. Unless permission is provided by the person that personal information is about (either the reporter or any person referred to in the report) that information will remain confidential.

The desired outcomes of the scheme are to increase awareness of safety issues and to encourage safety action by those who are best placed to respond to safety concerns.

Before submitting a REPCON report take a little time to, consider whether you have other available and potentially suitable options to report your safety concern. In some cases, your own organisation may have a confidential reporting system that can assist you with assessing your safety concern and taking relevant timely safety action. You may also wish to consider reporting directly to the Civil Aviation Safety Authority (CASA) if you are concerned about deliberate breaches of the safety regulations, particularly those that have the potential to pose a serious and imminent risk to life or health. REPCON staff may be able to assist you in making these decisions, so please don't hesitate to contact our staff to discuss your options.

REPCON would like to hear from you if you have experienced a 'close call' and think others may benefit from the lessons you have learnt. These reports can serve as a powerful reminder that, despite the best of intentions, well-trained and well-meaning people are still capable of making mistakes. The stories arising from these reports may serve to reinforce the message that we must remain vigilant to ensure the ongoing safety of ourselves and others.

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

### Obstacle Limitation Surface (OLS) control

R200800103

#### Report narrative:

The reporter expressed safety concerns about the Obstacle Limitation Surface (OLS) at an International Airport, reporting that the outer horizontal surface is infringed by the construction of five tower buildings in the City CBD. One is reported to penetrate the outer horizontal surface by 54.5 meters. The reporter believes that even higher structures are planned for the future. The reporter believes that there may be jurisdiction problems with regards to which government agency approves these apparent departures from standards and what safety case process is employed in the approval process. The *Airports Act 1996* vests powers with the Minister to enforce building height limitations, but the reporter believes that the Department does not employ appropriate specialists. Civil Aviation Safety Regulation (CASR) part 139 and the associated Manual of Standards (MOS) appears to be all about monitoring after the event, rather than Civil Aviation Safety Authority (CASA) approval or disapproval of tall structures in the OLS.

Reporter comment: OLS infringement is a serious safety risk factor. The situation at [the aerodrome] suggests a blind eye or a 'she'll be right' approach, rather than traditional Safety Management. There is an urgent need to ascertain and clarify which Commonwealth agency approves these OLS penetrations and on what basis.

#### Action taken by REPCON:

REPCON supplied the aerodrome operator with the de-identified report. The aerodrome operator provided the following response:

The primary Commonwealth legislation that regulates activities on and in some cases around [the aerodrome] is the *Airports Act 1996*.

*Airports Act 1996*

*The Airports Act 1996 (Act)* and *Airports (Protection of Airspace) Regulations 1996 (Regulations)* made pursuant to that Act provide a framework for the protection of what is known as the 'prescribed airspace' around [the aerodrome]. That 'prescribed airspace' is determined in accordance with international conventions and standards.

'Prescribed airspace' is made up of both the OLS [Obstacle Limitation Surface] and PANS-OPS [Procedures for Air Navigation Systems Operations] surfaces for the airport as well as specified airspace declared by the secretary of the [Department of Infrastructure and Transport (the Department)].

One of the key elements of this legislation is to protect that airspace from unauthorised infringements - such as buildings - that could affect the safe efficiency or regularity of both existing and future aviation operations at the [the aerodrome].

Any structures (permanent or temporary) infringing the prescribed airspace are called 'controlled activities', as defined under s182 of the Act, and require approval under the Regulations. Controlled Activities include:

- Structures such as buildings, antennas and cranes: and
- In some circumstances, activities causing non-structural intrusions into the protected airspace of artificial light, reflected sunlight, air turbulence, smoke, dust, steam or other gases or particulate matter.

The Act and Regulations are administered by [the Department]. [The Department] decides whether or not to approve a 'controlled activity'. The Aerodrome Operator has no approval authority for long-term controlled activities.

Note: For short-term 'controlled activities' (3 months or less durations) as described under the regulations, approval authority is delegated by the Department to the Aerodrome Operator, who facilitates assessment and advice from both CASA and Airservices Australia.

The approval process involves the proponent submitting building details including the proposed maximum structure height (including appurtenances) and location coordinates to [the aerodrome operator], and [the aerodrome operator] then facilitates assessment from Airservices Australia, CASA and the local building authority, before forwarding comments to [the Department] for final assessment and approval. The Department may approve, approve with conditions or refuse to approve the proposed 'controlled activity'.

On approval, a condition of approval required by the Department is for the structure to not exceed the approved height by the Department.

Under the Act, penalties apply for non-approved 'controlled activities' that penetrate the prescribed airspace surfaces.

*Civil Aviation Safety Regulations 1998 (CASRs)*

Under CASR 139.365 and 139.370, notification to CASA is required of any proposed structure (including construction crane) in excess of 110 m AGL [Above Ground Level]. This may result in CASA requiring that the structure be appropriately marked and lit. CASA is also able to make a determination under r 139.370 if a proposed development would be hazardous to aircraft operations including a gaseous efflux having a velocity of greater than 4.3m/s.

Recent Building applications approved by the Department in the [City] CBD include:

- [Building W] (approx. 250m AHD) - 2001
- [Building X] (approx. 215m AHD)
- [Building Y] (250m AHD); and
- [Building Z] (250m AHD) - 2008

REPCON supplied CASA with the de-identified report and a version of the aerodrome operator's response. CASA provided the following response:

CASA has no authority to stop such developments. The existing regulatory regime for obstacles, as set out in Civil Aviation Safety Regulation 139, does not empower CASA to prevent a development which creates an obstacle nor does it make CASA responsible for the presence of obstacles.

These matters are under consideration in the context of the development of the Government's National Aviation Policy Statement.

Notwithstanding the above, CASA also advised that:

Under CASR 139.360, the aerodrome operator must inform CASA of details of any proposed development near the aerodrome that is likely to penetrate the OLS of the aerodrome and create an obstacle. Under CASR 139.370 CASA makes a determination if the proposed development will be hazardous to aircraft opera-

tions because of its location, height or lack of marking and or lighting. CASA gives written notice of the determination to the proponent of the building or structure and to the relevant authorities whose approval is required for the construction of the building or structure.

REPCON supplied the then Department of Infrastructure, Transport, Regional Development and Local Government (the Department) with the de-identified report and a version of the aerodrome operator's and CASA's response. The Department provided the following response:

'Part 12 of the *Airports Act 1996 (the Act) and the Airports (Protection of Airspace) Regulations 1996 (the Regulations)* establish a legislative framework for the protection of the following airspace at and around airports:

- airspace above the Obstacle Limitation Surface (OLS)
- airspace above the Procedures for Air navigation Systems - Operations (PANS-OPS) surfaces
- airspace declared by the [Department] as airspace to be protected in the interests of future air transport operations.

The Act defines any activity resulting in an intrusion into an airport's prescribed airspace to be a 'controlled activity', and requires that controlled activities cannot be carried out without approval. This includes the construction of buildings that intrude into the prescribed airspace.

The Regulations provide for [the Department] or the airport operator to approve applications to carry out controlled activities around leased federal airports, of which [the airport] is one, and to impose conditions on an approval.

The Department assesses long-term (longer than 3 months) proposed controlled activities and short-term penetrations of the PANS-OPS. The airport may assess short-term controlled activities.

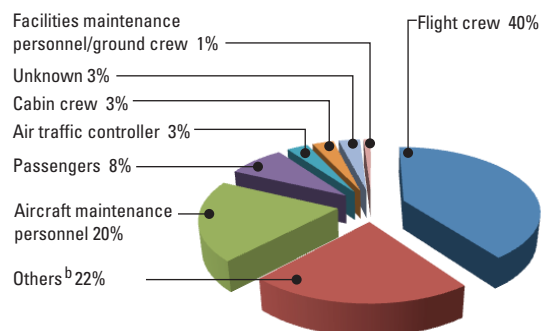
The airport operator coordinates long-term controlled activities' assessments and forwards these and the application to the Department for final

assessment and decision. Importantly, the Government's aviation safety agencies, the Civil Aviation Safety Authority (CASA) and Airservices Australia are consulted. In making a decision on an application, the Regulations require the Department to have regard to the opinions provided by CASA and Airservices on the application.

Decisions must be made in the interests of the safety, efficiency or regularity of existing or future air transport operations.

In summary, we can confirm that [the Department] implements the legislative framework protecting airspace above the OLS based on advice from CASA and Airservices for each application to conduct a controlled activity.'

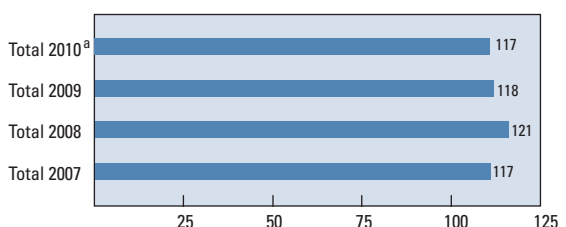
### Who is reporting to REPCON?<sup>a</sup>



a. from 29 January 2007 to 31 August 2010

b. examples include residents, property owners, general public

### REPCON reports received



a. as of 31 August 2010

### 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