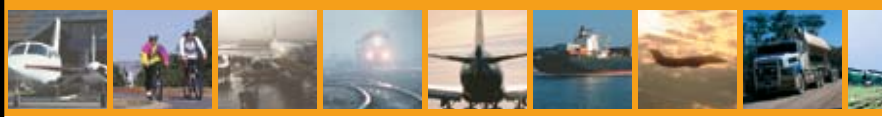
Australian Government
Australian Transport Safety Bureau

The Australian



Executive Director's Message

REPCON

I am delighted to report that the Australian Government has recently introduced a new confidential reporting scheme called REPCON (short for report confidentially) to be administered by the ATSB. Details of this scheme are included in this issue.

Since the discontinuation of the former CAIR scheme in 2004, the aviation industry has been keen to see a new confidential reporting scheme introduced but with legislative coverage. In developing the legislation, the ATSB has consulted closely with concerned members of the industry to ensure that the content of the legislation contains the elements required for a successful confidential reporting scheme that can be trusted.

The benefits of the new REPCON scheme include legal protections to ensure confidentiality for the reporter and, importantly, similar protections for individuals who may be reported on. The ATSB is interested in uncovering safety concerns: we are not seeking to damage an individual's reputation. Following the extensive consultative process, the REPCON scheme has now received acceptance from industry members who worked to provide input into the development of the scheme.

The REPCON scheme meets an ICAO requirement to provide the industry with a voluntary incident reporting system that is "non-punitive and provides protection to the sources of the information". Good reporting systems supplement mandatory reporting requirements and can provide an additional early warning of a safety weakness or failure somewhere within the industry.

If you have any safety concerns that you think the ATSB should be made aware of, please submit a REPCON report and let us know about it. Working together, we may be able to prevent accidents involving injury or loss of life from occurring in the future.

Kym Bills, Executive Director

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Have you been concern but do

It's simple – use REPCON the ATSB's new confidential safety reporting scheme

Commencing 29 January 2007, anyone with a concern about an aspect of aviation safety for which they require confidentiality when reporting, is encouraged to submit a confidential report to the Australian Transport Safety Bureau (ATSB) under the new REPCON scheme established by the Australian Government. REPCON is a confidential reporting scheme that has legislative coverage under the *Air Navigation (Confidential Reporting) Regulations 2006* [AN(CR) Regulations].

What is the purpose of REPCON?

Information from the reports about safety concerns will be used to identify unsafe procedures, practices or conditions in order to prevent or reduce the likelihood and severity of future aviation accidents and incidents. While adhering to the confidentiality requirements discussed below, the proposed Regulations would allow the ATSB to achieve this objective through issuing information briefs and alert bulletins. Information from a brief or an alert may be used by the industry to change operational practices or by the Civil Aviation Safety Authority (CASA) to make changes in the regulatory system or introduce additional education campaigns or surveillance.

What can be reported to REPCON?

Safety concerns that you may be interested in reporting might include:

- Scheduling or rostering patterns that do not allow sufficient rest periods and could lead to fatigue-related behaviours or situational awareness problems.
- Inadequate training or poor attitude toward safety standards and procedures which lead to unsafe practices.
- Operational/commercial pressures to 'cut corners' which lead to non-compliance with safety procedures.
- Inadequate resources or information to enable the conduct of safe operations.
- Unsafe practices regarding passenger handling, baggage, cargo, load control, weather advice, air traffic control or refuelling.
- Something that you have seen or heard about or something out of the ordinary that has an impact on aviation safety.

It is important to note that REPCON *cannot* be used to report industrial relations matters; acts of 'unlawful interference'; matters that represent a 'serious and imminent threat' to someone's health or life; or criminal matters attracting a penalty of greater than two years in prison. The latter should be reported to the police or other relevant authorities.

meaning to report a safety on't know how to report it?

Confidentiality is critical

The REPCON scheme will require confidentiality for the reporter and for a person referred to in a report. Confidentiality for both parties is paramount as the scheme is non-punitive. In general, REPCON staff will only be able to release personal information about a reporter, or a person referred to in a report, for the purposes of aviation safety after obtaining the person's consent. There are also extra protections to prevent a REPCON report from being admitted as evidence in a court or tribunal or relied upon for making an administrative decision or taking disciplinary action against a person.

How are REPCON reports handled?

Assessment and action in relation to reports will be performed by a dedicated REPCON team working in a secure, soundproofed office with security cabinets for all documentation. The REPCON team alone will have access to accept your reports, emails, web forms or phone calls. Only they will have access to mail from the REPCON-specific mail box and they will only accept telephone reports in the REPCON office where they cannot be overheard.

A REPCON team member will initially check the incoming report to ensure that it meets legislative requirements; is a reportable safety concern; and that REPCON is the most appropriate means of reporting the concern. REPCON staff will be concerned to be satisfied that the report was submitted in the interest of aviation safety and is not being used to settle a score, harm a competitor or pursue an industrial agenda. REPCON staff may contact the reporter for further information or clarification as required.

Once satisfied that the report meets the requirements of the scheme, REPCON staff will consider what action should be taken in relation to the report, while maintaining the confidentiality of the reporter and any third person referred to in the report, to assist the industry with addressing any identified safety issues. REPCON staff will advise the reporter of any action they have initiated in response to the report and provide the reporter with a unique serial number for the report.

A database established for the purpose of REPCON will only retain information from the report which de-identifies both the reporter and any other person referred to in the report. REPCON staff will either destroy the original report details or they will return the report to the reporter. Once the report is processed, REPCON staff will not be able to contact the reporter but the reporter is able to contact the REPCON staff by quoting the report's allocated serial number and can be advised of the report's outcome.

REPCON is different from other reporting schemes

The REPCON scheme is not to be confused with the mandatory reporting requirements under the *Transport Safety Investigation Act 2003* or the Aviation Self Reporting Scheme (ASRS) (which is for confidential self-reporting of reportable regulatory contraventions by civil aviation authorisation holders seeking to claim protection from administrative action by the Civil Aviation Safety Authority for the matter reported).

REPCON panel established to provide industry oversight

To provide an industry oversight of the scheme, REPCON will operate in consultation with an advisory panel consisting of four senior aviation industry representatives and chaired by the ATSB. The panel will meet annually for discussion and to provide advice that will ensure the scheme continues to meet its objectives regarding safe aviation. The panel will actively promote and encourage reporting to the scheme; monitor selected REPCON responses to de-identified reports; and,monitor REPCON's contribution to aviation safety. We look forward to and appreciate your input to aviation safety.

Ready to make a report?

Further details about REPCON and the REPCON report form, can be easily accessed via the ATSB website: www.atsb.gov.au. Reports can also be submitted via a dedicated REPCON telephone number: 1800 020 505; by email: repcon@atsb.gov.au; by facsimile: 02 6274 6461 or by mail: Freepost 600, PO Box 600, Civic Square ACT 2608.

Safety briefs

Breakdown of separation

Occurrence 200501921

On 30 April 2005, the pilot of a Cessna Aircraft Company A152 (C152) aircraft was conducting circuit training at Hobart. The C152 was on the downwind leg of the circuit when the crew of a Boeing Company B717–200 (B717) aircraft commenced the final leg of an instrument approach to the same runway.

The Hobart aerodrome controller was applying visual separation standards and had instructed the pilot of the C152 to make an orbit, and then continue downwind, to separate the C152 from other aircraft. The C152 pilot did not complete a full orbit, but turned onto the base leg of the circuit when the B717 was on final approach. The minimum distance between the converging aircraft reduced to between 400 and 500 m horizontally and 300 ft vertically and required the pilots of both aircraft to commence avoiding action. There was an infringement of separation standards.

The pilot of the C152 did not read back the instruction to continue on the downwind leg to the controller; nor did the controller request this read-back. There was no specific requirement in published documents for the read-back to be provided.

The controller did not provide the pilot of the C152 or the B717 with traffic information, or a number in the landing sequence as required by published documents. This led to a reduction in the situational awareness of the pilots of both aircraft and excluded them from participating effectively in the separation process.

Airservices Australia has advised that it is addressing the issue of obtaining read-backs, when necessary, through controller education, and has developed a roving check and standardisation programme for regional towers. As part of that programme, check and standardisation officers place emphasis on the use of correct phraseology and read-back.

The ATSB issued a safety recommendation to Airservices Australia to enhance pilot situational awareness. ■

Engine in-flight shutdown

Occurrence 200403110

At approximately 0104 EST on 25 Aug 2004, the left engine of the Singaporean registered Boeing 777-312 aircraft, 9V-SYB surged during takeoff from Runway 34 at Melbourne Airport. The crew subsequently reported that the surge occurred just at V1. The crew elected to continue the takeoff and the left engine surged multiple times during the departure, until they shut down the engine. Due to forecast turbulence, the crew maintained an altitude of approximately 3,000 ft above ground level to dump fuel and reduce the aircraft's weight for landing. Air Traffic Services vectored the aircraft over Port Phillip Bay for the fuel dump, which took approximately 1 hour, before the aircraft was returned to Melbourne for an uneventful single-engine landing. There were 300 persons on board and there were no reported injuries.

An engine examination found that several of the high pressure compressor (HPC) casing liners had eroded to the point of reducing the efficiency of the HPC.

As a result of this occurrence, the engine manufacturer, Rolls-Royce UK, advised the ATSB that: the two engines that were identified as being at risk of surging due to degraded High Pressure Compressor (HPC) efficiency were removed from service; if an Engine Health Monitoring(EHM) alert is issued and troubleshooting reveals no findings to explain the observed change, the engine manufacturer will review engine parameter data in more detail. This may lead to a recommendation that the engine is removed from service. The aircraft maintenance manual will be updated to include an inspection check of the rotor path lining immediately adjacent to the borescope port hole and to contact the engine manufacturer if no evidence of lining loss. The engine manufacturer has also developed an algorithm to alert changes of HPC efficiency as part of the automatically generated alerts produced for engine health monitoring purposes. ■

Runway incursion

Occurrence 200505170

On 20 October 2005, a Boeing 777-2B5ER aircraft (777), registered HL-7530, was taking off from runway 34 left (34L) at Sydney (Kingsford Smith) Airport on a scheduled passenger flight to Seoul, South Korea. After the 777 commenced the take-off run, an aircraft tug, radio callsign Qantas Tug Red Golf, with a Boeing 747-400 freighter aircraft (747) in tow crossed the departure end of the same runway. There was a runway incursion.

The investigation found that the tug driver involved in the occurrence had 17 years experience in driving a tug at Sydney Airport without being involved in any other recorded incident. Despite his extensive experience and the ongoing training and checking regime that was in place by the tug operator and at Sydney Airport leading up to the occurrence, the driver of Tug Red Golf thought that a clearance issued to the pilot of a taxiing aircraft was for the tug driver.

The driver believed he heard a clearance to cross runway 34 left from the surface movement controller east (SMC E). The driver acknowledged that clearance in accordance with published procedures but the SMC E remained unaware of the situation due to a radio overtransmission. In the absence of any response from the SMC E, the driver continued to cross the runway. From that point on, there was limited time available to prevent the runway incursion.

In the absence of stop bar lights and advanced pilot/driver/controller alerting systems, enhanced training emphasising crew resource management support during towing operations and removing any doubt from information contained in clearances and instructions are important elements to reduce the risk of similar runway incursions.

Airservices Australia and the tug operator reviewed procedures and made a number of changes to prevent similar occurrences. ■

Engine failure

Occurrence 200502231

During a flight from Essendon to Armidale, the left engine of a Piper PA31P-350 (VH-IGW) failed during cruise at 17,000 feet. An engine examination revealed that the crankshaft had fractured in two locations: through the web between the No. 4 main bearing journal and the No. 4 connecting rod journal; and through the web between the No. 3 main bearing journal and No. 3 connecting rod journal. It is evident that rubbing contact between the main bearing insert and the No. 4 main bearing journal fillet radius initiated surface damage, which created the multiple fractures of the crankshaft and the subsequent engine failure. The factors that contributed to this event may be related to the retention of the main bearing insert in its housing and the crankshaft loading conditions that act to displace the bearing insert from its location in the bearing housing.

Photograph showing the fractured section of the crankshaft in the position found during initial engine examination

The movement of main bearing inserts during engine operation is a function of the magnitude of the forces that resist movement (created by establishing an interference fit) and the magnitude of forces acting to move the insert (crankshaft bending moments).

One factor that lowers the resistance of an insert to movement, the inclusion of material between the parting faces of the main bearing housings during engine assembly, was identified. However, other factors that may contribute to bearing insert movement, such as the magnitude of crankshaft bending moments, could not be established from an examination of the physical evidence.

The restoration of the surfaces of the main bearing housings indicated that main bearing insert movement was not an isolated case. ■

Structural failures

Occurrence 200601173

Recreational Aviation Australia (RA-Aus) Inc, is an administrating body for microlight aviation in Australia. As part of its work, RA-Aus conducts safety investigations into microlight incidents and accidents.

During the investigation of two fatal accidents, RA-Aus requested assistance from the Australian Transport Safety Bureau (ATSB) in conducting the technical examination and analysis of parts and components recovered from the accident sites, to assist RA-Aus in compiling its final report.

The first accident occurred in Atherton,

Fracture of the right wingspar of 32-4456

Qld (registration 32-4456) on 20 October 2005 and the second in Cessnock, NSW (registration 32-4388) on 21 January 2006. Investigators identified a third fatal accident which occurred at Hexham, NSW (registration T2-2625) in 1996. The Hexham coronial findings (0063/96) were delivered on 25 March 1997 and were used to establish that this accident was similar in nature to those in Atherton and Cessnock.

In all three accidents, the failure of the main wingspars (Airborne Edge design) had occurred near the wingtip. Qualitative analysis of the structural design and loading of the part during this safety investigation and the examination of the coronial findings from the Hexham accident, revealed that the main wingspar had failed under negative G loading. Such loading was likely if the aircraft entered or encountered flight conditions outside of the manufacturer's specified flight envelope. Examination of material characteristics of the failed wingspars did not show evidence of material deficiencies that could have contributed to these accidents.

In addition, examination of the propeller assembly from 32-4388 and the canopy material from 32-4456 indicated that the failure of these components was unlikely to have contributed to the accidents. ■

Airprox

Occurrence 200604809

A Fairchild Industries Ltd. SA227 Metroliner was inbound to Williamtown, NSW, when the control zone and restricted airspace were not active. The co-pilot made an inbound broadcast on the common traffic advisory frequency (CTAF) at 20 nm south, to which no response was heard. The crew reported that at 10 nm south of Williamtown, as they were descending through 3,000 ft, they passed within an estimated 30 m of a low-wing, retractable landing gear, single-engine aircraft travelling in the opposite direction. The pilot in command, who was the pilot flying, reported that his attempt to avoid the other aircraft would not have been timely enough to affect separation and there was an Airprox.

The investigation was unable to: identify the other aircraft; determine why its pilot had not transmitted mandatory radio messages to provide positional information; and determine if the aircraft transponder equipment (if equipped) was serviceable.

The investigation found that since November 2005, radar services in the Williamtown area had been reduced when the military airspace was not active – an unresolved technical problem with the military secondary surveillance radar at Williamtown had impacted the civilian air traffic control system. A replay of the military radar data showed that the Metroliner's radar return merged with the primary return (no identification or altitude information) of another aircraft travelling in the opposite direction, overhead Newcastle.

The occurrence demonstrated the limitations of the see-and-avoid concept as an adequate means of achieving safe separation from other traffic in an unalerted traffic environment. It also demonstrated the arbitrary hand played by good fortune in avoiding a mid-air collision over a populous area, when just one pilot in an airspace system that relies on the cooperation of all pilots either cannot or does not choose to participate. ■