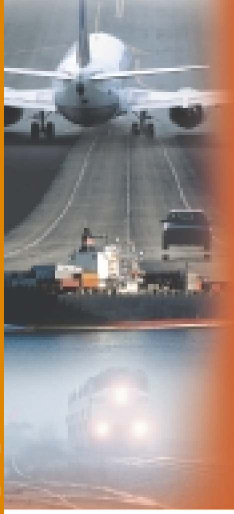


ATSB Australian Transport Safety Bureau

Air Safety Investigations

Recently completed investigations

As reports into aviation safety occurrences are finalised they are made publicly available through the ATSB website at www.atsb.gov.au

Fixed-wing Aircraft

Occ. no.	Occ. date	Location	Aircraft	Short description
199900844	02 Mar 1999	3 km S Waikerie SA	Piper PA-25 and Burkhart Astir CS	Mid-air glider and tow aircraft accident
199903711	17 Jul 1999	Lajak Reporting Point	Boeing 747 and Tupulov TU-154	Airborne confliction
199904029	20 Aug 1999	Adelaide SA	Airbus A320	Missed approaches in fog
199904898	20 Oct 1999	Wrotham Park Qld	Cessna U206	Accident following takeoff
199905562	24 Nov 1999	83 km SSE Mornington Is. Qld	Cessna U206	Fatal accident into the sea
199905571	25 Nov 1999	Kalgoorlie/Boulder WA	BAe 146	Pre-departure electrical rack fire
199905596	28 Nov 1999	3 km E Canberra ACT	Cessna A150	Engine power loss before forced landing accident
199905871	07 Dec 1999	Mt Isa Qld	Fairchild SA227	One engine inoperative on landing
200000869	01 Mar 2000	93 km SSE Mackay Qld	Two Fairchild SA227s	Limitations of sight and follow procedures
200002130	13 May 2000	Richmond NSW	Boeing 747	Bird strike at 8000ft
200002857	26 May 2000	1500 km SW Los Angeles USA	Boeing 747	Engine compressor blade failure
200002938	06 Jul 2000	11 km WSW Brisbane Qld	Cessna 172 and Beech 300	Alleged breakdown of separation
200003428	24 Jul 2000	37 km N Sydney NSW	Saab 340	Strong oily odour in cockpit

Preliminary Report

Occ. no.	Occ. date	Location	Aircraft	Short description
200002836	06 Jul 2000	Sydney NSW		Sydney Terminal Control Unit power loss
200003130	24 Jul 2000	'Kanela Park' Qld	Bell 206L	Ground impact; landing through fog
200003771	4 Sept 2000	65 km SE Burketown Qld	King Air	Overflew destination aerodrome

Interim Factual Report

Occ. no.	Occ. date	Location	Aircraft	Short description
200002157	31 May 2000	28 km SE Whyalla SA	Piper PA-31	Fatal accident into the sea

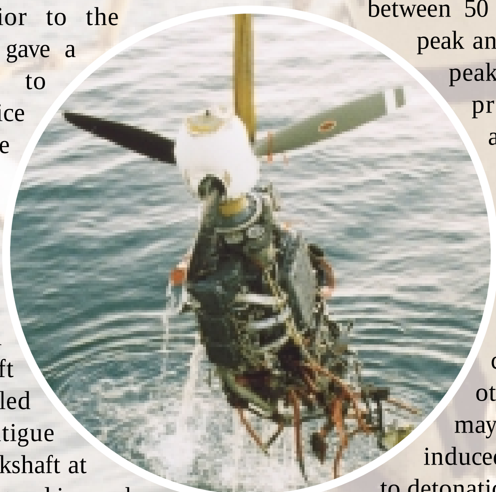
For more occurrence reports and safety information

visit us at www.atsb.gov.au

Chieftain investigation leads to safety recommendations

THE ATSB has issued three safety recommendations arising from the ongoing investigation into the circumstances in which a Piper PA31-350 Chieftain ditched in Spencer Gulf SA with the loss of eight lives during a regular public transport (RPT) service from Adelaide to Whyalla on 31 May 2000 (Occurrence 200002157). The recommendations relate to mixture leaning procedures and the carriage and use of life saving equipment.

Immediately prior to the accident the pilot gave a MAYDAY report to Flight Service indicating that the aircraft had experienced two engine failures. The investigation found mechanical damage to both engines. The left engine had failed following a fatigue fracture of the crankshaft at the No. 6 connecting rod journal. Cracks of this type are created by the generation of thermal stresses in the journal surface.



The No. 6 connecting rod "big end" bearing had failed and it was evident that engine operation had continued after the bearing shells had been broken down. The surface of the journal, and the journal radii, had been damaged extensively by the rotation of the journal against the connecting rod. Extensive thermal cracking was evident over the entire journal surface.

In the right engine a hole had developed near the top of the No. 6 piston, allowing combustion gases to bypass the piston rings. The hole had been created by an exposure to temperatures within the melting range of the piston material. There were no failures of any other structural components of the right engine.

The ATSB is examining a number of recent occurrences involving Textron Lycoming TIO-540 series turbo-charged engines, similar to those fitted to the PA31-350. Engineering analysis indicates that the engines had typically been operated at or near peak exhaust gas temperature (EGT).

The fuel mixture leaning practice adopted by the operators during cruise flight was based on EGT settings ranging between 50 degrees (F) rich of peak and 50 degrees lean of peak EGT. While this practice is in accordance with the PA31-350 pilot operating handbook, early results suggest that operations in that EGT range, in combination with other possible factors, may have contributed to induced engine damage due to detonation.

This is in contrast to other operators who have not experienced similar problems, and use a more conservative leaning procedure by setting EGT at around 100 degrees rich of peak.

Induced damage may manifest itself through low compression, loss of power, erratic operation, metal contamination in filters or even complete engine stoppage. The underlying reasons for these symptoms can include burnt pistons, stretched or 'tuliped' valves, cracked spark plug ceramics or distressed bearings.

Operators can minimise the likelihood of such damage by eliminating the possibility of detonation. It can be insidious, and a pilot may not be aware that detonation is occurring.

Pending the outcome of its investigation of these issues, the ATSB suggests that, in addition to following the guidance provided in the pilot operating handbook, the operators of all turbo-charged engines avoid high cylinder temperatures through the adoption of a conservative approach to fuel mixture leaning practices.

Civil Aviation Orders 20.11 paragraph 5.1.2 details requirements for the carriage of life jackets for over-water flight. Multi-engine land aircraft authorised to carry nine passengers or less on RPT or passenger charter operations are not required to be equipped with life jackets or equivalent flotation devices unless the aircraft is operated over water and at a distance from land of greater than 50 NM. The Adelaide to Whyalla route was less than 50 NM from land.

Preliminary evidence indicates that the occupants of the Chieftain would have had sufficient time to don life jackets had they been provided. At least two of the occupants may have escaped from the aircraft after it ditched, but subsequently drowned. Had life jackets or equivalent flotation devices been available it is possible that their chances of survival would have been greatly increased. ■

The Australian Transport Safety Bureau has recommended that:

- the Civil Aviation Safety Authority alert operators of aircraft equipped with turbo-charged engines to the potential risks of engine damage associated with detonation, and encourage the adoption of conservative fuel mixture leaning practices. (R20000250)
- the Civil Aviation Safety Authority amend Civil Aviation Order section 20.11 paragraph 5.1.2 to remove the restriction that it only applies to aircraft authorised to carry more than nine passengers. (R20000248)
- the Civil Aviation Safety Authority ensures that Civil Aviation Orders provide for adequate emergency and life saving equipment for the protection of fare-paying passengers during over-water flights where an aircraft is operating beyond the distance from which it could reach the shore with all engines inoperative. (R20000249) ■

Australian Transport Safety Bureau – Supplement

Safety briefs

Glider accident prompts action

Occurrence Report 199900844

The ATSB has made a number of safety recommendations following a collision between a Piper Pawnee and an Astir CS glider over Waikerie on 2 March 1999 in which two pilots were fatally injured.

The Pawnee was towing a Grob Twin Astir prior to the collision. The pilot of the Grob immediately released the tow when a collision between the two aircraft was imminent.

The recommendations followed the findings that: aerial towing was conducted through areas of gliding activity resulting in traffic conflicts which relied solely on visual acquisition for separation; pilots did not adequately use CTAF procedures for traffic alerting; and the Astir CS pilot's lookout was not effective.

The ATSB recommends that the Gliding Federation of Australia, in conjunction with its member clubs, incorporate the use of radio for effective traffic alerting into standard operating practices as a matter of priority.

It also recommends that the Federation adopt measures to make all aircraft engaged in gliding activities more conspicuous, and that it considers developing procedures that permit segregation of aero towing and gliding activity.

Since 1986 a number of investigations into fatal collisions have emphasised that pilots need to be more vigilant with lookout but the numbers of mid-air collisions has not reduced. Again this highlights the limitations of un-alerted see-and-avoid.

Potential for mid-air collision avoided

Occurrence Report 199903711

Aircraft with Eastern European SSR transponders are at risk of a mid-air collision if they transmit in metres, an ATSB investigation has revealed.

The transponders offer crew the option to output altitude information in either feet or metres, and selecting the metre option may make the aircraft invisible to another aircraft's traffic alert and collision avoidance system (TCAS).

On 17 July 1999 a Boeing 747 (B747) en route from London to Bangkok and a Tupulov 154C (TU154), whose departure point and destination are unknown, came perilously close to disaster.

Despite the close proximity of the two aircraft, the B747's TCAS did not display the TU154. The crew reported that the TCAS system was functioning correctly and had monitored aircraft at other stages during the flight. The TU154 crew confirmed that the secondary surveillance radar (SSR) transponder mode C function of the TU154 was operating correctly.

A mid-air collision was avoided when the crew of both aircraft and air traffic control were able to communicate on the actual aircraft positions.

The crew of the B747 aircraft had monitored a position report from the crew of the TU154 aircraft. The report's estimate of LAJAK (reporting point) was 1907 UTC and the B747 was estimating it at 1906. Both aircraft were at FL 330. The B747 crew advised air traffic control of the conflict, which then directed the TU154 crew to descend to FL290.

The investigation was unable to determine if the TU154 was equipped with a metric mode transponder. The operator of the B747 issued an alert to all its crews.

Electrical fire in RCCB

Occurrence Brief 199905571

A small fire in the electrical equipment bay of a BAe 146 just prior to departure has led to a new inspection and monitoring procedure by its operator. New heat sensitive decals have been fitted to the remote control circuit breaker (RCCB) contactor chambers and operating temperatures will be recorded into a database at regular intervals.

The fire started after the RCCB failed, leading to the failure of the AC power supply. The ATSB examined the RCCB and found it had been subjected to excessive heat and current load. This had caused a catastrophic internal failure. The heat generated lead to molten metal escaping from the RCCB main contactor compartment. The metal flowed across two energised power cables and short-circuited two AC power phases.

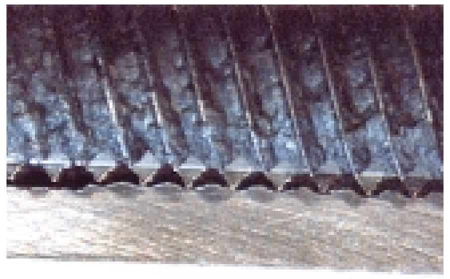
The RCCB was located in an equipment bay that was not monitored for fire or smoke detection. The crew was alerted to the fire by smoke in the cockpit and system failures at engine start-up.

The AC-powered hydraulic pump internal thermal switch wire was pinched between the impeller housing and the stator, effectively creating a short circuit. The effects of the short circuit would only be noticed when the pump has exceeded an operating temperature of 204 degrees Celsius. Although the pump did not exhibit outward signs of excessive heat it did exhibit a general state of deterioration commensurate with an extended time in service for this unit.

Cessna 402 trim failure prompts changes

Occurrence Brief 199805359

A number of failures in Cessna 402 elevator trim tab actuators has revealed that, contrary to the manufacturers maintenance instructions, only the least expensive part is being replaced during an overhaul.



A cross section view of the Cessna 402 trim tab actuator.

The Cessna Aircraft Company and the US National Transportation Safety Board recommends that the actuator should be overhauled every 1,000 hours or three years and checked for security and condition at every 100-hour inspection, and included the recommendation that both internal screw assemblies be replaced as a set.

The elevator trim tab actuator for the Cessna 402 aircraft has an internal jackscrew mechanism with a male-threaded rod and an internal female-threaded barrel. The practice of opting to replace only the less expensive male part has led to increased play and decreased thread engagement in the actuator.

The practice became apparent when the ATSB investigated an incident on 29 November 1998 in which the pilot of a Cessna 402 was unable to trim out the nose down forces during a descent. The pilot managed to control the nose down pitch but landed with the elevator trim tab jammed in the nose down position.

Examination of the actuator revealed that the threads in the male and female screw assemblies were severely worn and the shaft was also bent. At the last overhaul only the male screw assembly had been replaced.

According to the ATSB investigation it was possible that the actuator had jumped threads when the pilot turned the trim wheel. The trim tab began to flutter, then the male end of the rod had bent and jammed.

Cessna will supply the parts only as a set.

For more information, see the Civil Aviation Safety Authority's Airworthiness Advisory Circular AAC 1-111 (August1999) and the ATSB Air Safety Interim Recommendation No. IR19990187.

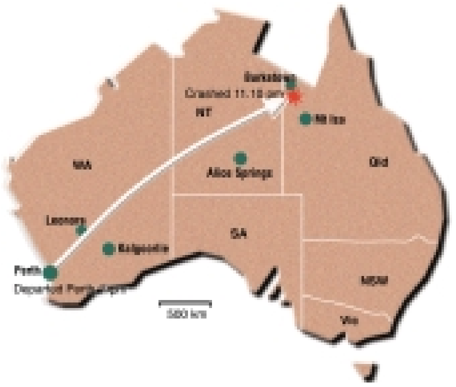
King Air overflew destination

Preliminary Report 200003771

A King Air distintigrated when it impacted the ground 65 kms south-east of Burketown on 4 September 2000 after it departed from Perth on a routine flight to Leonora. All eight occupants were fatally injured.

The aircraft had departed Perth at 1008 (UTC) and was cleared to climb to 6,000ft and to follow a Kajun 3 standard instrument departure (SID).

At 1010, it was cleared to climb to flight level (FL) 130 (13,000ft). At 1015 the aircraft was cleared to climb to FL250.



At 1020, as the aircraft passed through FL150, the controller instructed the pilot to fly direct to position DEBRA. The pilot acknowledged this transmission.

At 1033, as the aircraft climbed through FL256, the controller requested the pilot to verify the aircraft's altitude. The pilot replied "Sierra Kilo Charlie, – umm – standby". The ATC radar display indicated that the aircraft's altitude continued to increase.

From 1034 to 1043, several transmissions were made on the frequency last used by the pilot. No words were intelligible. Transmissions by the controller to the aircraft were not answered.

The aircraft continued to climb on the Perth to Leonora track. At 1102, the aircraft left radar coverage at position 218 NM (404 km) north-east of Perth, climbing through FL325.

At 1335, the aircraft was sighted by the crews of two other aircraft that had been requested to intercept and follow it. At 1510, one crew reported that the King Air had turned left through 90 degrees and impacted the ground.

The on-site investigation found that the aircraft had struck the ground at high speed in a shallow decent on a heading of 320 degrees M.

The investigation is continuing.

Check lists—familiarity breeds contempt

Occurrence Brief 199905871

Safety action recommendations following an incident involving a malfunctioning engine fire warning system on a Fairchild Metro SA227-AC point out the danger of basing emergency decisions on previous experience and reinforce pilots' obligations in following emergency checklist actions in full.

The incident was similar to two other engine fire indications the pilot in command (PIC) had experienced with the same engine on the same aircraft in a two-week period approximately three months earlier. In all events, phase one emergency procedures—involving immediate recall and checklist-prompted actions—were initiated, followed by engine shutdown.

During the first two incidents, the PIC had discharged the relevant fire extinguisher into the fire zone after engine shutdown. Following engine shutdown during the third event however, the fire warning light had extinguished and the PIC chose not to discharge the fire extinguisher.

Following the first event, the operator discovered that insulation on a wire in the fire warning system had chafed on a bracket and rectified the damage.

After the second event, the fire detection system was checked for operation and no fault could be found. Notwithstanding, it was considered that the lower turbine fire warning detector was possibly too close to the engine, leading to a spurious fire warning. The detector was repositioned and the aircraft was returned to service.

Investigation of the most recent event showed that one of the fire detectors was activating at the wrong temperature and so was replaced with one of the correct temperature range. At the time of writing, similar problems had not recurred.

While the PIC's decision not to activate the fire extinguisher may have been influenced by the two recent events, it placed heavy reliance on the extinguished warning light as an indication that there was no longer a threat of fire. The decision also did not take into account that the malfunction of the fire warning system may have been masking a real fire.

The company's operations manager undertook to plan a company training program to reinforce aircrew's obligation to follow aircraft emergency procedure checklist actions.

Mate,
I take pressurisation more seriously now!

By Michael Watson

Instrument panel of a Cessna 421 Golden Eagle showing the position of the cabin altitude warning light (shown in red). Below it are the cabin altitude and cabin differential indicator and the cabin VSI gauges.

Dear old school mate,

GUESS what! I've finally been put onto a pressurised aircraft! I've just had a chance to fly the company's Cessna 421: it looks the same size as a 402 or a Navajo, but it feels solid and heavy. It sounds truly awesome when it takes off. I'm really looking forward to being let loose on it, because it doesn't look that much more complicated.

Here the training is totally different. Bill (the ugly old check and trainer) spent two days with me doing a ground school on the 402 when I first got here and has done another whole day on the engines and pressurisation on the 421 since then. When I did the endorsement recently (it was similar to what I did with the 402) it wasn't rushed, and Bill made sure that I was OK with all the abnormal stuff and the instrument approaches as well.

Bill still doesn't let you go off by yourself (like we used to) but he flew with me on the job for a while. He called it line flying. I wasn't quite sure why at first but he just sat there and watched. When we were up in the cruise he'd ask me questions, but on descent when it got a bit busy he'd just sit and watch. If I stuffed it up a bit he'd talk about it after all the passengers had gone and ask me about how I had controlled my descent profile. It was good really, because he helped me to work out a system that would work better.

Having said all that, the 421 was a different kettle of fish. Flying it wasn't actually that difficult, but the numbers were all different. The engines are much bigger, and all the power settings, fuel flows, and speeds aren't the same. Descending faster meant that the system I'd worked out for the 402 didn't work on this one. I finally got that sorted out, but Bill kept on going about the pressurisation. I didn't quite get what he was on about during the endorsement flying, but when we were doing the line flying, he was continuously asking questions about why the pressurisation could get me into trouble.

The problem (so Bill says) is that if the pressurisation isn't working, then the vital bits of your body start to conk out first (Bill has a way of saying things). The bit of your body that's going to save you is your brain, but that's what stops working first. When you start to run out of oxygen you lose the ability to recognise that something has gone wrong. He says it doesn't matter what you can see in the cockpit, if your brain can't work it out this means you've got a problem.

He then told me to go away and think about what would tell me if the pressurisation wasn't working OK. I did, and I thought that my ears would be the easiest: if they feel like I'm climbing in an unpressurised aircraft then something is wrong with the pressurisation. Fine, Bill said, but you can't rely on the feeling in your ears as you might not notice it every time. If that's the case, then you can't trust your life to noticing any change in your ears. If your head is clear, your ears equalise much more easily than if you've had a cold in the last few weeks. Also, since I'll still be flying an unpressurised aircraft a lot, I'll be used to that sensation, and I'd be less likely to notice that it's different in the pressurised aircraft.

The best bet then, he reckons, is the pressurisation gauges. The 'cabin pressure differential' gauge should be reading something more than zero, and the cabin altitude must be well below the real altitude on the way up. Also the cabin Vertical Speed Indicator should be reading a lot less than the main VSI when the aircraft is established in a climb. The cabin altitude is what really matters, so why not watch that?

Bill said that if you look at the 'cabin diff' and the VSI as well, and they are both reading something sensible, then you aren't trusting your life to only one instrument, and you are now in a reliable condition as there is 'system redundancy'. This means that you have more than one instrument telling you the same thing (that the pressurisation is working) and if one instrument wasn't working then they wouldn't all be telling you the same story and you would know that something was wrong. (This is a bit like improving reliability by having two of anything else, Bill says.)

This is fine, Bill said, as I now have a reliable set of instruments telling me that the pressurisation is working, so the least reliable bit of the system must be me! I've got a commercial licence, so I must be a professional pilot! How can he say that? If I'm not reliable, then why did he give me this job? For once he didn't get cranky. He pointed out that everyone expects me to do a good job, but since missing the pressurisation just once in my flying career is one time too many, it's his job to do everything he can to help me make sure that I never miss checking the pressurisation is OK. Well I didn't argue with that, and I listened more. Bill said that he thinks that the only reliable indication is the gauges, as I couldn't guarantee I'd notice something different in my ears or that I'd see the cabin altitude warning light.

Bill said that since the pressurisation was set to kick in at 500ft after take off, he required all his pilots to check the pressurisation gauges before giving a departure broadcast and then again passing 10,000ft before setting the altimeter for the flight levels. This way if I missed one check, I should catch the next one. Bill also requires the cabin altitude at 10,000ft to be written down on the flight log as well as the maximum cabin differential when we are up in the cruise. I'd never really understood why he wanted that but he pointed out that he had this done so that he, as my manager, would know that I had done this safety critical check and that's the only reason that I have to do it. Bill does all this to try and make me (the most unreliable bit of the pressurisation system) as reliable as he can. It sounds a bit odd to have him think of me as just a part of a mechanical system and using this 'programming' to improve me as a part of that system!

OK, so what about the cabin altitude warning light? It should light up at a cabin altitude of 10,000ft, which sounds OK as no-one worries about flying at 10,000ft without oxygen. Bill is very rude about this. He points out that this is the very last chance you get if you miss out on noticing that the pressurisation is set wrong and that this last chance to save you is just one little light that isn't even in your line of sight where you're normally looking.

The problem, he says, is that your eyesight starts to go when your brain does. So what? I asked. Well, he said, when your eyes do start to go, your eyesight fails first around the edge of your visual field (where you aren't paying much attention anyway) and the warning light isn't in the centre of your normal visual field. Not only that, but since this is your last chance, there isn't anything else to alert you that something is wrong.

He wouldn't be so worried if there was something noisy that got your attention at the same time as the warning light, as you would notice the sound and it would alert you that there's a warning light somewhere that needs something doing about it. Once you start to go hypoxic, and the vision and thinking ability start to fade, not only will you be less likely to see the warning light, and even if you do, there's a fair chance that your brain won't register that there's a problem.

> **"I wonder if they understand how problems with pressurisation can lead to an accident without them even realising it"**

On the climb, Bill reckons that there's only a limited amount of time for the warning light to be any good at warning you, as the cabin altitude will be increasing all the time. It won't be long before you'll never notice any warning light because you will have 'lost it' by then.

'So what?' asks Bill. Well, you mustn't trust the cabin altitude warning light to keep you safe, because you can't guarantee that you will see it, or realise what the problem is. So you need a system that will tolerate you making a mistake before you get to a situation where you might need to rely on the warning light. This means that you have to know that the pressurisation is OK well before the cabin altitude warning light might illuminate. It also means that if the warning does light up, and I notice it, then all the systems that Bill has put in place have failed and I am in a dangerous situation. Well, not this time, maybe, because I can do something about it, because I've seen the warning light and fixed the problem. But what the light has really shown is that the reliability designed in the procedures that Bill is beating into me, has failed. Bill said that he wants to know EVERY time I see that light, because he wants to make sure that I never do see it in anger. That sounds fine by me!

I guess that Bill must have had a scare with pressurisation some time ago to make him so cranky about it today, but I think that I've been lucky in having him explain the practical side of it all to me. There's no way that I would have taken it so seriously otherwise. I wonder how many other pilots get on when they haven't had someone like Bill bending their ear. I wonder if they understand how problems with pressurisation can lead to an accident without them even realising it. It's a bit spooky, because with most of the other things that I can think of that could go wrong, I'd at least know something about it, and I could try to do something about it.

That's not the case with a pressurisation problem!

P.S. Come to think of it, why don't these planes have a warning horn?

Confidential Aviation Incident Reporting

THE Confidential Aviation Incident Reporting (CAIR) system helps to identify and rectify aviation safety deficiencies. It also performs a safety education function so that people can learn from the experiences of others. The reporter's identity remains confidential. To make a report, or discuss an issue you think is relevant, please call me on 1800 020 505 or complete a CAIR form which is available from the Internet at www.atsb.gov.au

Chris Sullivan
Manager CAIR

CAIR reports 1 January to 30 June 2000

REPORTS RECEIVED

ATS	Flight Attendant/ Other	Flight Crew	Maintenance/ Ground	Total
19	27	56	23	125

REPORTS ACTIONED

Forwarded for Action	Request Response	Responses Received
85	42	37

CAIR reports

Feedback – High number of circuit aircraft in MBZ (CAIR 200002375)

Further to the detail published in the Sept–Oct 2000 edition of *Flight Safety Australia* on this CAIR, the following additional response was received in September from the Aerodrome Operator.

Aerodrome operator: In response to your report on the above subject, I wish to advise you that we have taken action as follows:

We have conferred with the local representatives of Airservices Australia and with our local CASA Inspector. In addition, we have discussed the matter at some length with our major users of airspace.

After due and proper consideration of every aspect of the matter we have issued notice to the publishers of ERSA along the lines suggested in your report. That is to say that there will now be an entry in ERSA to the effect that 'a maximum of five aircraft are permitted in the circuit outside TWR hours'.

Unauthorised change of level

(CAIR 200002535)

We were en route from [overseas airport] *to Sydney in the B767 at FL410, a sector of approximately nine hours – back of the clock. The Captain was asleep during a period of controlled rest in accordance with company procedures. The First Officer (FO) was monitoring the flight, which had a small margin between the high and low speed buffet; any fluctuation between these speeds can cause control problems.*

At 0400 EST, the aircraft encountered a sudden period of moderate to severe turbulence. The FO immediately maintained a constant attitude. As well as maintaining control of the aircraft, the FO was required to obtain a descent clearance from air traffic control, illuminate the fasten seat belt sign, alert the passengers and cabin crew using the PA system and brief the awakening, but startled Captain. The aircraft experienced altitude fluctuations before ATC were alerted to request a descent.

The workload placed on the FO was considered excessive and similar situations would be better managed if the aircraft carried three crew members on these flights. The potential for disaster was high, particularly now that reduced vertical separation minima (RVSM) *is applied within some areas of the region.*

Response from airline: The company Policy and Procedures Manual covers the use of rest periods on flights as mentioned in the report. The flight falls within the guidelines of CAO 48. The issue of augmented crews on long-haul operations is being addressed by company flight operations.

Response from CASA: The report states that the sector being flown has a flight time of about nine hours. CAO 48.1.1.4 normally limits rostered flight time for a two-pilot crew to eight hours. Although the operator is not identified, the assumption is that the flights are being conducted under either an exemption against CAO 48.1, or in accordance with a safety operational specification issued under CAO 82.4.1.

As the Bureau is aware, CASA is reviewing flight time and duty limitations for both flight and cabin crew as part of the Regulatory Reform Program, and is also engaged in a program to develop a fatigue risk management system. In the meantime, all standing exemptions issued against CAO 48 are being re-examined by Compliance Division before renewal. A copy of the CAIR report has been passed to the officers concerned.

Frequency concerns (CAIR 200002487)

An instructor and myself were approx 60 NM ENE of [capital city] *at 6,500ft inbound to* [regional airport]. *I called Centre on 125.3 MHz asking for clearance and was told to contact Approach at 36 NM. I can't remember if a frequency was given.*

At approximately 43 NM, I called Approach on 130.45 MHz, which was the frequency on the VNC chart that I was using. Twice I called with no response. The instructor suggested that I try 118.2 MHz, which is the frequency for arrivals from the NE, as is in the ERSA. This got an immediate response and clearance.

Is the VNC chart wrong, or am I missing something?

If approach uses two frequencies, and 130.45 MHz is the one they drop off when traffic is quiet, then shouldn't 118.2 MHz be on the VNC chart, or a NOTAM be produced?

If traffic is heavy and two frequencies are being monitored, then why didn't they respond to my call on 130.45 MHz?

If 130.45 MHz is not being used, why is it on the charts?

Response from Airservices Australia: ATC frequency 130.45 is monitored continuously as part of a suite of frequencies managed by the Terminal Control Unit (TCU). The Voice Switching Communications System (VSCS) in TAAATS enables frequencies to be selected in various operating modes as follows:

- Traffic mode enables the operator to transmit and receive on the selected frequency
- Monitor mode enables the operator to monitor the frequency without being able to transmit
- Idle mode essentially means the frequency is switched off.

In the TCU, consoles are opened (and closed) dependant on the level of traffic. At the start of the day one console is open managing all ATC frequencies including 118.2 and 130.45. When the second console is opened, due to increasing traffic, the VSCS is programmed to transfer those two frequencies to the new console.

A problem has been identified in which, on transfer, 118.2 would transfer in the traffic mode but for some unspecified reason 130.45 would transfer in the idle mode. The controller would then have to manually select the traffic mode. This may have taken several minutes to recognise and correct. Thus it is highly likely that the pilot happened to call on 130.45 whilst this process was occurring.

This was identified as a system fault and action was taken to correct this at the next software upgrade. This action has been completed and the fault rectified.

A CAIR form can be obtained from the ATSB website @ www.atsb.gov.au or by telephoning 1800 020 505.

RPT operation without brakes

(CAIR 200003555)

An Islander aircraft was being operated on a regular public transport (RPT) flight. The crew was obviously conducting pre-departure checks and had applied full power but there could not have been any brake pressure because the brake calliper had fallen off and the aircraft was moving forward.

The crew did not disembark their passengers, but elected to take-off without brakes and continue with their schedule. I understand that rather than fly direct to their home base, they continued to [en route airfield] *first. They landed at* [en route airfield] *without brakes and then took off again for* [final destination]*and again without any brakes. Passenger safety was clearly at risk.*

CAIR note: The incident was not reported to the ATSB through the open ASIR system. The CAIR report was the first notification.

Response from operator: The captain did elect to continue the take off at [origin] with a suspect brake, although at that point he was not yet aware of the extent of the problem.

The captain did not continue with the original schedule after [origin]. He contacted the company on HF radio en route to [en route airfield] and reported that the company would have to make alternative arrangements for the schedule after [en route airfield]. He did not indicate a reason at this stage, or that there was any anomaly with the aircraft.

The decision to continue the take off at [origin], continue to [en route airfield], and subsequently depart was made solely by the crew without any consultation or influence from the company. This course of action would not have been supported by myself or the company.

In counselling after the incident, it was reiterated to the captain that his decision to continue the flight under these circumstances was not supported by the company, and both the direct and indirect safety implications of continuing a flight with an unserviceable brake were pointed out to him.

In hindsight the captain understands that he made the wrong decision.

An internal memo to all company crew has been circulated reminding them of the company defect reporting system, and that safety always comes before schedules and commercial implications.

Fuel starvation (CAIR 200002943)

On descent through 3500ft, the aircraft's engine stopped producing power due to fuel starvation. After completing initial emergency checks the pilot radioed a MAYDAY call to Tower. The pilot continued checks and realised that the problem was due to the right fuel tank running dry. The pilot changed tanks, restored power to the engine at 2100ft and then landed safety.

This incident occurred due to rushed planning, poor fuel management and a chain of distractions and anxieties. The pilot has analysed the situation deeply and has learned greatly from the incident.

CAIR note: Aviation incident databases include many such incidents occurring throughout the world, including many that resulted in subsequent accidents where the pilots were not so fortunate. Poor fuel management in a car on the road can be embarrassing; poor fuel management in an aircraft in the air can be disastrous.

Performance change request

(CAIR 200000448)

[Aircraft] *was an ADS* (automatic dependent surveillance) *track on the TAAATS display and under sector control. At approximately 2100 UTC the 'track' stopped moving and stayed at approximately 100 NM north-west of Alice Springs for almost 40 minutes. The actual position of the aircraft was almost 400 NM away before the problem in the TAAATS system was resolved.*

This is not the first time this type of failure has occurred. It is of great concern as the position of the aircraft symbols on the display is the primary tool for ensuring 'separation' and conflict recognition. The duty OSS later reported that the performance change request (PCR) *on this error in the system has been 'downgraded' to non-urgent.*

CAIR note: Airservices Australia advised that the PCR was classified as EMERGENCY in recognition of its criticality and had always retained that classification. The problem was rectified in the next release of TAAATS software. ■

ATSB is part of the Commonwealth Department of Transport & Regional Services

Australian Transport Safety Bureau – Supplement