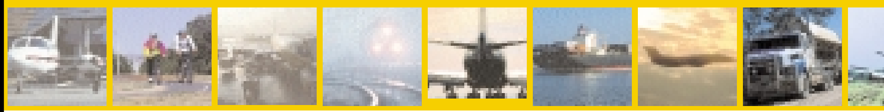
# The Australian Air Safe



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

It performs air safety functions in accordance with the provisions of Annex 13 to the Convention on International Civil Aviation (Chicago Convention 1944) as incorporated in Part 2A of the *Air Navigation Act 1920*. Part 2A contains the ATSB's authority to investigate air safety occurrences and safety deficiencies.

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

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

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

## Engines failure due fuel exhaustion

Occurrence: 200200007

DURING cruise flight both engines of the Nomad N22C failed. The pilot then conducted a successful forced landing on a beach. After the landing, company personnel noted that the left fuel gauges indicated 120 lbs and the right fuel gauges indicated 160 lbs.

Before his initial departure, the pilot had noted the fuel gauge indications and asked the refueller to add 200 L of fuel to the aircraft. The pilot did not mention to the refueller that he intended to depart with full fuel tanks. After the refuelling was completed, the pilot did not visually check the contents of the fuel tanks. The refueller later stated that neither fuel tank was full after refuelling.

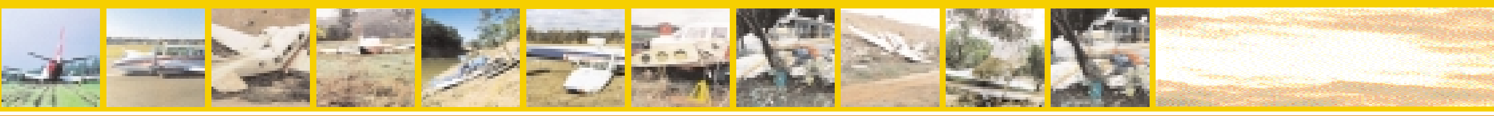
The company operations manual required the pilot in command, before flight, to verify using fuel gauges and visually that the total fuel on board was sufficient for the flight. The pilot stated that he had never visually checked fuel tank contents in the Nomad or Caravan. Other company pilots said it was rare for company pilots to visually check the contents of aircraft fuel tanks.

The pilot had accumulated a total of 70 hours in the Nomad. The majority of his recent flying was in Cessna Caravan aircraft, in which he had accumulated 1,500 hours.

Inspections of the fuel tanks identified that all four fuel quantity transmitters were contaminated by microbiological material. The level of microbiological material in the transmitters was sufficient to affect their accuracy. The aircraft manufacturer recommended that fuel tanks and fuel quantity transmitter units be cleaned every 1,800 hours time in service. On this aircraft, the transmitter units had been cleaned less than 1,000 hours prior to the occurrence.

The evidence indicated that the aircraft's engines failed due to fuel exhaustion. The pilot's method of establishing fuel on board was not robust, with no provision for the possibility of errors in the fuel quantity indicating system. It is possible that the perceived reliability and accuracy of the Caravan fuel quantity indicating system influenced the extent of the pilot's reliance on fuel gauge indications. The company operations manual requirement for preflight fuel quantity assessment was deficient in that it did not adequately address the individual fuel system characteristics of the different aircraft types in the company fleet.

On 11 January 2002, the company issued a memo modifying fuel management requirements. The company also reviewed and rewrote company training documentation and wrote to the aircraft manufacturer regarding the time interval between fuel tank inspections.





# Recently completed investigations

As reports into aviation safety occurrences are finalised they are made publicly available through the ATSB website.

## Published July–August 2002

| Occ. no. | Occ. date | Released | Location | Aircraft | Issues |
|---|---|---|---|---|---|
| 200105932 | 29-Dec-01 | 27-Aug-02 | Strahan Tas. | Cessna A185F | Inadequate pre-flight preparation |
| 200200007 | 4-Jan-02 | 20-Aug-02 | 4 km N Porpoise Point VTC QLD | GAF N22C | Engines failed due to fuel exhaustion |
| 200105157 | 22-Oct-01 | 16-Aug-02 | Alice Springs Aero. NT | Boeing 737-376 | Severe turbulence |
| 200105937 | 17-Dec-01 | 13-Aug-02 | Perth Aero. WA | Boeing 747-312 | Fuel spill at the terminal |
| 200004671 | 13-Oct-00 | 13-Aug-02 | 120 km NNE Canberra Aero. ACT | Beech 1900D | Emergency checklist not followed |
| 200104847 | 7-Oct-01 | 13-Aug-02 | Pinav (IFR) WA | Boeing 747-412/Boeing 747-438 | Failure to update ADS system |
| 200103353 | 24-Jul-01 | 12-Aug-02 | Canberra Aero. ACT | Boeing 737-376/L.Georgia C-130J | Infringement of seperation standards |
| 200105559 | 21-Nov-01 | 7-Aug-02 | 278 km ESE Alice Springs VOR NT | Boeing 737-476/Boeing 737-376 | Reduced vertical separation |
| 200105743 | 6-Dec-01 | 5-Aug-02 | Lord Howe Island (NDB) NSW | DHC-8-201 | Main landing gear inhibit switch engaged |
| 200004070 | 18-Sep-00 | 1-Aug-02 | Merredin (ALA) WA | Burkhart G-115C2/Burkhart G-115C2 | Mid air collision |
| 200102139 | 15-May-01 | 23-Jul-02 | Sydney Aero. NSW | Fairchild SA227-AC/Cessna 404 | Runway incursion |
| 200102866 | 25-Jun-01 | 18-Jul-02 | 15 km NNE Perth VOR WA | DHC-8-102/Boeing 747-200 | Loss of separation standards |
| 200105866 | 14-Dec-01 | 18-Jul-02 | 83 km NE Warrnambool Aero. Vic. | Piper PA-31-350 | Crankshaft fracture |
| 200105701 | 4-Dec-01 | 18-Jul-02 | 46 km ESE Sydney Aero. NSW | Boeing 767-300ER | Left engine fire warning light illuminated |
| 200105926 | 23-Dec-01 | 17-Jul-02 | Palm Beach ALA NSW | Cessna A185F | Infringement of separation standards |
| 200102905 | 5-Jul-01 | 15-Jul-02 | 12 km SSE Tamworth VOR NSW | Mooney M20J/Saab SF-340B | Infringement of separation standards |
| 200103696 | 7-Aug-01 | 4-Jul-02 | Brisbane Aero. QLD | BAe BAe 146-100 | Cabin air contamination |
| 200103238 | 18-Jul-01 | 4-Jul-02 | Perth Aero. WA | BAe BAe 146-200 | Strong fumes and a burning smell |
| 200102467 | 31-May-01 | 4-Jul-02 | Mackay Aero. QLD | BAe BAe 146-100 | Cabin air contamination |

**Erratum:** A photograph that appeared on page 54 of the July-August 2002 edition depicting a crash of a Cessna into trees was used for illustration purposes only and is not related to the article published on page 55.

# Safety briefs



## Encounter with severe turbulence

Occurrence: 200105157

On 22 October 2001, a Boeing 737-376 aircraft encountered severe turbulence between 1131 and 1133 CST while conducting an approach to runway 30 at Alice Springs Airport. The aircraft encountered the severe turbulence as it descended through 4,700 ft (approximately 2,900 ft AGL) during the approach when it was located about 3 NM from the edge of a convective cell with a high base. The severe turbulence encountered by the aircraft was probably associated with strong convective outflows from that cell.

The general weather situation in the Alice Springs area was influenced by an unstable air mass with a trough developing to the west of Alice Springs. The aerodrome forecast issued at 0353 indicated strong, gusty north westerly winds during the day with moderate turbulence below 5000 ft after 0330. Storms were forecast to develop by 1130. The 1130 weather radar picture image showed thunderstorm activity to the south east of the airport with areas of moderate rain recorded between 4 and 19 NM from the airport adjacent to and astride the approach path for runway 30.

Following the encounters the flight crew conducted a missed approach and advised the aerodrome controller about the severe turbulence. There was no record that the crew's reports were passed onto Bureau of Meteorology for processing. The Manual of Air Traffic Services was ambiguous and did not provide clear guidance to controllers as to what action should be taken following the receipt of a pilot report concerning severe turbulence in the terminal area.

This occurrence highlights the need for air traffic controllers and flight crews to be aware of the hazards associated with convective activity. ■

## Inadequate preflight preparation

Occurrence: 200105932

There were five persons on board the Cessna 185 floatplane when the pilot taxied for a charter flight from the wharf at Strahan, Tas. The pilot steered the aircraft out of the cove into more open water to position the aircraft for takeoff into the prevailing northerly wind.

The pilot reported that the aircraft had travelled approximately 1 km, and was at the start of the planned takeoff run, when he assessed the water state as being marginal for the aircraft. He then began steering the floatplane back towards the wharf when a catamaran cruise boat, travelling in the opposite direction, passed on the left. Waves generated by the accelerating catamaran prompted the pilot to steer the floatplane left to cross the bow-wave head on. After negotiating the wake, the pilot resumed course to the wharf. The pilot then became concerned about the buoyancy of the right float. He increased power and applied left aileron and aft elevator, to counter the increasing list to the right, but the aircraft nosed over and came to rest inverted.

The pilot and two passengers were able to evacuate quickly from the submerged cabin and were followed a short time later by another passenger. At that time, the pilot was diving for the remaining passenger, who eventually surfaced unaided. Three life jackets floating in the water nearby were retrieved by the pilot and were donned by passengers. The pilot and passengers were rescued a short time later by a nearby boat and another floatplane. ■

## Increasing cabin altitude during climb

Occurrence: 200004671

During climb, while passing through flight level (FL) 180 for FL190, the pilot of the beech 1900D noticed the illumination of the CABIN ALT HI warning annunciator. The cabin altimeter was noted to be indicating 9,800 ft and gradually increasing. A 500 ft/min cabin rate of climb was noted on the cabin vertical speed indicator. The aircraft was initially cleared by air traffic control to descend to FL160. That was later amended to FL140 at the request of the crew. During the descent, the crew completed the quick reference handbook CABIN ALT HI emergency checks. Those checks required that the crew donned their oxygen masks and that the passenger oxygen masks should be deployed. The crew donned their oxygen masks but decided not to deploy the passenger masks as the cabin altitude was below 14,000 ft.

As the aircraft passed through FL160, the cabin altitude reached 12,500 ft. A further descent was requested and conducted to FL120, where the cabin altitude stabilised at 12,000 ft and the CABIN ALT HI warning annunciator light extinguished.

The aircraft emergency checklist required that the passenger oxygen masks be deployed as part of the mandatory actions to be taken following the CABIN ALT HI warning caption illumination. The crew had decided not to deploy the passenger oxygen masks as they believed that it was not required in that situation, as the cabin altitude was below 14,000 ft.

A maintenance investigation carried out by the operator found that the aircraft depressurisation had been the result of a failed cargo door pressurisation seal. The seal was replaced and the aircraft returned to service. ■

## Failure to comply with ATS clearance

Occurrence: 200102139

A Fairchild SA227-AC (Metro) aircraft was cleared to taxy to the Bravo One holding point runway 16R. The taxiway entered runway 16R at the threshold allowing the full length of the runway for takeoff. The co-pilot reported ready 12 minutes before curfew. Aircraft that received a taxi clearance prior to 23:00 but subsequently departed after commencement of the curfew period were able to use the full length of the runway and were not required to reposition south of taxiway Golf. Aircraft that taxied after 23:00 were required to take off from south of taxiway Golf.

At 22:52:15, a Cessna 404 (Titan) called for a taxi clearance and was cleared to the taxiway Foxtrot intersection. At 23:05:00, the Metro was cleared to take off from 16R. Almost immediately at 23:05:07, the pilot of the Titan was issued a conditional line up clearance. The clearance was: 'CSV, Metro departing, behind that aircraft line up'. The pilot replied 'Behind the Metro holding clear Foxtrot at the moment, lining up, CSV'. Less than 30 seconds later, the Metro crew reported aborting takeoff.

Neither the Metro pilot nor the controller understood that the Titan pilot had said that he was lining up at the Foxtrot intersection during the read back of the conditional clearance. The audio replay confirmed that the Titan pilot's transmission was difficult to understand.

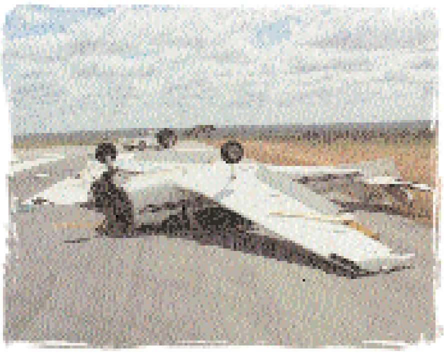
The Titan pilot said that he understood that the line up clearance was a conditional clearance but thought the Metro was departing from taxiway Golf because of the curfew period. The aerodrome controller was busy and by issuing a conditional clearance to the Titan pilot, the controller distanced himself from the responsibility of watching and waiting for the Metro to roll for take off.

The Metro would have been difficult to see as its external lights would have blended in with the airfield lighting and the lights of Sydney to the north of the airport. When the Metro was cleared for takeoff, because its position at the threshold was not annunciated by the controller and it was during the curfew period, the Titan pilot assumed the aircraft was departing from taxiway Golf.

## Mid air collision between two aircraft

Occurrence: 200004070

Two Grob G115-C aircraft, VH-ZIR and VH-ZIB collided at low altitude while on short-final approach to runway 18 at Merredin, WA. Each aircraft was being flown by a student pilot on a solo training exercise. Following the collision, neither of the pilots was able to maintain control of their aircraft.



The nose of ZIR pitched steeply upwards and the aircraft became inverted, striking the runway in a nose low attitude while the nose of ZIB pitched downwards with the aircraft landing heavily on its nose wheel. Both aircraft came to rest on the runway.

The pilot of ZIR received minor injuries and was trapped in the cockpit until bystanders lifted the wreckage and helped him clear. The pilot of ZIB was not injured.

Witnesses reported that they saw the two aircraft converging on short final, with the lower aircraft being approached from above and behind by the higher aircraft, which was travelling slightly faster. It is likely that the relative positions of the two aircraft on final approach had prevented the pilot of the higher aircraft from seeing the lower aircraft ahead. Neither pilot had seen the other aircraft prior to the collision occurring. The investigation could not positively determine the sequence of impact between the two aircraft. The physical evidence was consistent with ZIR being struck from above and behind by ZIB, and prior to becoming inverted as a result of the collision.

## Loss of separation standards

Occurrence: 200102866

A Boeing 747-200 (B747) was being radar vectored from the west for sequencing to runway 21 at Perth. A de Havilland Canada DHC-8-102 (Dash 8) was being radar vectored from the east for sequencing to land on runway 21 behind the B747. When the crew of the Dash 8 reported that they had sighted the B747, the air traffic controller assigned them the responsibility for separation from the B747. The rate of closure between the two aircraft was high and the crew of the Dash 8 received a traffic advisory from their traffic alerting and collision avoidance system. Although the Dash 8 crew was being issued with radar vectoring instructions by air traffic control, they were obliged to turn their aircraft to the right to avoid the B747.

Radar data and air traffic control automatic voice recordings were reviewed to establish the sequence of events. The investigation found that the approach controller had assigned the responsibility for separation to the pilot of the arriving Dash 8 while the aircraft was being radar controlled. The radar separation standard required 3NM horizontal separation while there was less than 1,000ft of vertical separation. During the occurrence, radar separation reduced to 1.82NM when there was 100ft vertical separation. A radar or vertical separation standard was not required when some other form of separation was being applied. In this situation the controller was relying on visual separation.

Visual separation of air traffic may have been a valid method to use in circumstances where less than the required radar separation is achievable. However, the criteria for the application of the standard were clearly detailed in the Manual of Air Traffic Services (MATS) Part 4 Section 5. In particular, MATS 4.5.1.11 stated: 'In circumstances where an aircraft has been instructed to maintain separation from, but not follow, an IFR aircraft, traffic information shall be issued to the IFR aircraft, including advice that responsibility for separation has been assigned to the other aircraft'. The arriving B747 was an IFR aircraft but was not provided with the required traffic information.

# Microburst effect on aircraft performance

On 18 January 2001, a Boeing 737 aircraft, encountered microburst windshear at 0729 EST while conducting a go-around from runway 19 at Brisbane aerodrome during an intense thunderstorm. Heavy rain and hail accompanied the thunderstorm, and 8.8 mm of rain was recorded at the aerodrome between 0725 and 0730 which was equivalent to a rainfall rate of 105.6 mm per hour.

The recorded flight data from the aircraft's flight data recorder was examined during the occurrence investigation, and revealed that the aircraft experienced increasing headwind conditions during the go-around, which were then followed by decreasing headwind conditions. Those conditions were typical of a microburst windshear encounter. In the 30-second interval between 0728:25 and 0728:55, the aircraft encountered a steadily increasing headwind from 16 kts to 26 kts.

In the following 15 seconds, the headwind fluctuated between 23 and 29 kts, peaking at 0729:10, then during the next 16 seconds, the headwind steadily decreased to seven kts.

Microbursts are associated with convective activity, and comprise intense local downdrafts with divergent surface flows. Their horizontal extent is usually about 5 km or less, and their lifetime only a few minutes. Horizontal and vertical windshear produced by microbursts can present significant hazards to departing and arriving aircraft.

Microburst events are generally associated with large variations of wind direction and speed. The microburst in this case was considered by the Bureau of Meteorology to be relatively weak, based on the maximum winds observed at the anemometer located on Brisbane aerodrome.

Windshear is a change in wind speed and/or direction, including updrafts and downdrafts. An aircraft may experience a significant deterioration in flight performance when exposed to windshear of sufficient intensity or duration.

Windshear is hazardous if it reduces the energy state of an aircraft faster than can be restored with engine thrust. Under such circumstances, the aircraft's airspeed may reduce below the stall speed and be accompanied by a critical loss of altitude. Consequently, windshear is particularly hazardous to departing and arriving aircraft. In these phases of flight, aircraft are operating with minimum excess energy at low altitude and airspeed. If it becomes necessary to achieve maximum aircraft performance, there will be a time delay while the engines accelerate to the required thrust setting, and the landing gear and wing flaps are reconfigured to maximise lift and minimise drag.

NASA uses term F-Factor to quantify the loss of performance experienced by an aircraft due to an encounter with windshear. F-Factor is derived from the total energy of an aircraft and its rate of change. Total aircraft energy is the sum of its air-mass kinetic energy (airspeed) and its potential energy (altitude). The rate of change is the ratio of thrust minus drag-to-weight for a particular airspeed.

A descending airmass has a positive F-Factor, and will decrease the energy state of an aircraft. A typical transport-category aircraft travelling at 150 kts that encounters windshear with an F-factor of 0.15 over one nautical mile will experience an altitude loss of 911 ft if no recovery action is taken.

A typical twin-jet transport-category aircraft has an excess thrust-to-weight ratio of between about 0.20 and 0.17, and is capable of maintaining the necessary energy state for a windshear encounter of F >0.15. However, if an aircraft encounters a windshear where F is greater than the excess thrust-to-weight ratio of the aircraft, then the maximum performance capability of the aircraft will be exceeded.

The same aircraft will have an excess thrust-to-weight ratio of about -0.05 while on a typical 3-degree landing approach slope. During the approach, the engines are at relatively low thrust settings. Drag is also increased with the landing gear and wing flaps in the landing configuration. If the aircraft encounters windshear, significant energy will be lost in the time taken for the crew to recognise and react to the threat.

Flight through a downdraft (or updraft) results in air not striking a wing horizontally, but at a small angle relative to horizontal. That results change the relative airflow across the wing results in an alteration of its angle of attack without a change in pitch angle.

Pilots should therefore appreciate that flight through a microburst will likely result in a transient reduction in angle of attack, which in turn will reduce the lift coefficient.

| Downdraft vertical component | Decrease in angle of attack Airspeed 120 kts | Airspeed 140 kt |
|---|---|---|
| 1,000 ft / min | > 4 degrees | > 4 degrees |
| 2,000 ft / min | > 9 degrees | > 8 degrees |
| 3,000 ft / min | > 13 degrees | > 11 degrees |
| 4,000 ft / min | > 16 degrees | > 15 degrees |
| 5,000 ft / min | > 20 degrees | > 19 degrees |

The resultant disturbance to the equilibrium of forces acting on the aircraft will displace below the intended flight path.

Pilots should also appreciate that flight through heavy rain has the potential to seriously affect aircraft performance.

Research into the aerodynamic penalties of heavy rain on landing aircraft has estimated that roughness associated with drop impact 'cratering' on an aerofoil would produce a 37 per cent loss in maximum lift in rainfall over 100 mm/hour. The researchers also estimated that roughness from waves on the film of water coating the aircraft under those circumstances would result in losses in maximum lift from between 11 to 30 per cent, depending on rainfall rate. Consequently, those penalties to maximum lift would result in a decrease in the stall angle of between 1 degrees and 6 degrees, and thus increased stall speed.

The researchers estimated that the drag coefficient of an aircraft due to drop cratering and wave-induced roughness, was in the order of 5 to 10 per cent at rainfall rates of 100 mm/hour, and concluded that:

> These lift and drag penalties are of a magnitude sufficient to produce serious aerodynamic penalties on an aircraft when in the landing configuration in a thunderstorm. Thus we believe that aircraft penetrating heavy rain in a landing configuration may experience serious penalties that could potentially lead to an accident.

Additional research has been conducted into the influence of heavy rain on aircraft accidents. The researchers stated that:

> Since the observation of regions of heavy rain is relatively simple, as compared to wind shear observations, it is recommended that primary emphasis by pilots and tower controllers be placed upon the avoidance of heavy rain cells on final approach and on takeoff climbout.

From a safety viewpoint, the most serious encounter with rain would be expected to occur in the landing, takeoff, and go-around configurations. In these configurations, air speed is slow, stall margin minimal, and rain effects are maximum.'

The researchers also recommended that all pilots should:

> be alerted to the possibility of a significant increase in descent rate and decrease in airspeed when penetrating a heavy rain cell. Pilots should be alerted to the fact an aircraft may stall at an airspeed considerably above the calculated stall speed if roughness elements are present on the wing. In addition, all pilots should be aware of the possibility that an aircraft may stall prior to the activation of the stall warning stick shaker.

NASA research studies have also indicated that aircraft climb performance margins in extremely heavy rain conditions are reduced by an F-Factor of 0.01, and that this performance loss may exceed the aircraft's ability to recover from micro-burst windshear encounters under certain conditions .

During the go-around, and as the B737 climb performance began to rapidly reduce, the airspeed dropped to below 150 kts. The aircraft was therefore travelling slightly less than 2.5 air nautical miles per minute. The 3,300 ft/min reduction in rate of climb therefore represented a loss of 1,320 ft per air nautical mile, which suggested that the microburst F-factor was greater than 0.15.

A typical twin-jet transport-category aircraft has an excess thrust-to-weight ratio of between about 0.20 and 0.17, and is capable of maintaining the necessary energy state for a windshear encounter of F>0.15. The reduction of the rate of climb to less than 300 ft/min was an indication that the aircraft was nearing the stage where there was no longer an excess thrust-to-weight ratio, and that there was a risk that its maximum performance capability was about to be exceeded.

The occurrence highlights that thunderstorms and convective activity in terminal areas are a significant issue in Australian and international aviation. It also illustrates the significant adverse effect of heavy rain on aircraft performance. The hazards associated with those weather conditions are not solely confined to the presence of severe thunderstorms, and should not be underestimated.

Whenever thunderstorm activity is forecast, there is a potential for microburst windshear and heavy rain. Aircraft in the landing, take-off, missed approach or go-around phases of flight are particularly vulnerable in or near thunderstorms. The effects of microburst windshear and, to a lesser extent, the aerodynamic penalties imposed by flight through heavy rain, can place an aircraft in a potentially-high-risk situation. ■

# Confidential Aviation Incident Reporting

THE ATSB database is currently being upgraded. Now operating as part of the upgraded system is a facility for online submission of CAIR reports, a facility not available under the former system. The existing means of reporting by post, telephone, facsimile and email will remain open, the online system will be additional. Please note that the use of a reporting form is not a requirement, a letter is fine. However, all reports must include the name and contact details of the reporter, CAIR does not act upon anonymous reports.

**John Robbins**
**Manager CAIR**

## New airstrip within CTAF

(CAIR 200200028)

*A local aircraft owner has constructed an airstrip approximately 1 NM NNW of the [location] aerodrome within the CTAF boundary. Regular Public Transport (RPT) aircraft on approach to runway 18 pass over the airstrip at about 500 ft AGL. The local aircraft has been observed in the [location] CTAF after take-off and on approach to this airstrip without making any radio calls. In addition to the RPT aircraft, there are two state government aircraft flying each weekday, which have to fly over the airstrip on take-off and approach to runways 18 and 36. I think that within a see and be seen CTAF, aircraft at unusual attitudes in the circuit area are a hazard.*

**CAIR Note:** The Civil Aviation Safety Authority's publication CAAP 92-1(1) para 8.4 relates to the reporter's concerns raised above.

**Response from CASA:** An investigation of this report has found that the owners of this private airstrip operate a radio-equipped aircraft and use the radio at all times when operating into/out of their airstrip. The pilot of the aircraft that was reported in this incident, landed at the private airstrip without the owner's permission.

A meeting was held between the land owners of the airstrip and the [location] aerodrome operator. CASA has been advised that the aerodrome operator is intending to alter its Planning Schemes to require a development plan for any aircraft based activities under the [location] aerodrome OLS footprint to be submitted for approval.

As no breach has occurred, CASA does not intend to take further action in this matter.

**Response from aerodrome operator:** I am responding to your aviation incident report noted above, involving the construction of a private airstrip roughly 3 km north of the [location] Aerodrome directly under the take-off/landing zone.

On [date], I had a meeting with the airstrip owner concerning the incident. In the interview she revealed that she was aware of the incident mentioned, and the circumstances surrounding it.

She said that on the day an ultralight had sought refuge on her strip after coming into conflict with the RPT service. It landed on her strip for a short time until the RPT was clear, and then took off again. The aircraft did not have a radio. My understanding is that she did not make it down to her strip to have words with the pilot before he took off.

In general, regarding her constructing a strip where she has, I have gone through all regulations and advice from people in the air industry and there appears to be no direct regulation I can use to close her strip, which is built in the adjoining shire. I have spoken to the adjoining shire, and as the strip is for private use only, there are no IPA requirements for the development, so there are no town planning issues.

The airstrip owner is known to use the radio on her own aircraft to declare her intentions prior to landing and take-off, so at this point I cannot claim she is being unsafe in her use of the airstrip.

I have spoken with our town planners who are rewriting our town plan, and who also happen to be doing [name] Shire's, and requested that they include a clause that no aircraft/airstrip based activity be allowed to occur within the obstacle limitation plan for the [location] Aerodrome without going through a development process.

In the future, the town plan should have the power to stop anyone constructing a private strip, but at this point in time there is nothing that can be done to this private strip unless the use of it becomes either commercial or unsafe.

## Flight attendant duty times

(CAIR 200100671)

*There may be safety concerns with a situation that seems to be developing as airlines continually strive to reduce costs and improve profitability. This concern relates to flight and duty times for flight attendants.*

*The company transferred nearly all of its flight attendants to another part of the company group organisation. The purpose of this action was to strike a new industrial agreement less prescriptive than that existing at the time. The idea was to employ all but four flight attendants on a casual basis with the hint that permanent employment might be available to the casual flight attendant at some time in the future. It would not be unreasonable to suggest that permanent employment could be dependent upon their performance and willingness to accede to company requirements.*

*Actions such as these are well within the company's right to conduct its business the way it sees fit–but there have developed some quite profound safety implications that flow directly from their industrial situation. In many cases, these individual and mainly young single flight attendants, are only getting 2 to 3 days work a week. The need to earn enough money compels them to seek additional employment elsewhere – often shift work at places like casinos, restaurants, hotels and retail outlets. The company has had numerous instances where flight attendants report for duty directly from* *other employment and are obviously quite fatigued at the time of signing on. When queried by pilots as to why they look tired, the usual response is that there is little choice as they have commitments that must be met and they need the money.*

*Some flights are up to 8 sectors with full meal services provided. Even for a fully fresh, rested flight attendant, this is a taxing proposition. Should an emergency evacuation be warranted, the cabin crewmembers are so tired that a successful outcome is dubious. Flights are normally conducted over quite short sectors with high temperatures and turbulence. There is a view that sectors undertaken in excess of 6 are successfully completed with the grace of good fortune. Given that there are no legal constraints upon the number of hours that flight attendants are permitted to work (occasionally up to 13 hours), this is a growing issue. This situation is further exacerbated when the flight attendant is already tired at the time of commencing work.*

*A specific example relates to a flight attendant reporting for work on two consecutive days when manifestly unfit for duty. She was attempting to mask injury that should have seen her resting. When asked why she was at work, the alleged response was that because she did not get any sick leave, she could not afford to miss any shift that she was offered. Flight attendants dare not speak up in case they are refused the opportunity for full-time work if and when it becomes available.*

*The real issue is not about their industrial or employment arrangements, but rather how these arrangements impact upon the overall safety of the operation and the capacity of these flight attendants to perform adequately in an emergency. They are integral to the operation, yet there are no restrictions on their fitness for duty or hours of work. There is a real concern that if these practices are permitted to continue, they could have an impact on flight safety. Will there need to be a serious accident for them to be addressed?*

**Response from CASA:** Currently the Authority has no rules relating to fatigue for flight attendants. However, CASA is working on this issue with the Flight Attendants Association of Australia as part of the Fatigue Management Project Group. The work is ongoing.

## Birdstrike and safety concerns

(CAIR 200103648)

Concerns are being regularly raised on the declining safety standards being breached by company operations. This following incident described below is only one of those that are regularly reported.

[aircraft registration] *on* [date] *flew to* [location 1] *from* [location 2] *arriving at 1600. The crew verbally reported to the LAME on duty, that the aircraft had suffered a birdstrike.*

*The LAME reported the birdstrike to engineers in* [location 3] *and* [location 4] *and did not make an entry into the Discrepancy Log. The aircraft then flew to* [location 2] *where an inspection was made. When the LAME was questioned, he advised 'that blood and guts was everywhere but it'll be alright.'*

*After a flight on* [date] *another LAME made an entry into the Discrepancy Log. 'Evidence of birdstrike on No 1 engine – engine parameters normal' An indication of this entry was that there was another verbal report by the crew.*

*The aircraft was inspected by borescope.*

1. *Crew should have made entry in Discrepancy Log on initial indication that birdstrike had occurred on arrival in* [location 1].
2. *The LAME allowed the aircraft to depart* [location 1] *by making an uninformed decision outside the scope of his license.*
3. *The crew also made only a verbal report to* [location 2] *where the engineer carried out the inspection.*
4. *No report made to ATC at* [location 1] *or airport control that I am aware of that a birdstrike had occurred.*

*I am also suspicious of the manner in which the company does not require inspections or certification for aircraft turn-arounds and this has caused concern for most engineers working on the maintenance contract.*

**Response from CASA:** The Authority's investigations have confirmed the matters raised in the CAIR report. As a consequence of CASA's investigation, the companies have:

- produced an Operational Information Circular explaining in clear terms the reporting responsibilities of pilots and engineers and the legal ramifications of the failure to enter defects into technical logs;
- employed more LAMEs licensed on the [aircraft type 1] and endorsed them onto [aircraft type 2]. These LAMEs have been posted to [location 1];
- employed more appropriate type specialists in the [operator maintenance department]. They have been instructed by the [operator] engineering management to oversight all line defects and to provide advice and support in cases where an individual is uncertain of what course of action to take;
- improved communication between [operator] and [maintenance organisation] by implementing regular meetings, one aim of which is to keep LAMEs aware of their regulatory responsibilities; and
- employed a reliability engineer who, amongst other things, will monitor all line defects.

## Damage to pilots' night vision

(CAIR 200203290)

*There is a recently-created safety deficiency at* [location] *Airport in the form of a new building which* [company 1] *and* [company 2] *motor vehicle hire firms use to wash and clean their rental vehicles. After dark, rental vehicles are positioned in the wash area for a considerable time with their headlights on high beam. The beams pass through the airside perimeter fence and across the General Aviation grassed parking area. This creates two difficulties:*

- *pilots preparing to depart can lose their night vision due to the headlight beams illuminating the parking area; and*
- *pilots exiting the nearby runway can lose their night vision because the headlight beams (particularly from the* [company 1] *facility) shine right along that taxiway.*

*Possible remedies include:*

- *a simple opaque barrier fitted to the airside perimeter fence to block the headlight beams;*
- [company 1] *and* [company 2] *could ask their staffs to consider the night vision of pilots when moving vehicles at night; and*
- *the airport operator could review the effect of vehicle headlights on pilot night vision around the entire airport perimeter, and install opaque barriers where problem areas are found.*

**CAIR Note:** In discussion, the reporter stated that the vehicles remain with their lights illuminated on high beam for 10 to 15 minutes while they are washed, dried and internally cleaned. In answer to a question, the reporter stated that he did not believe that having the vehicles lights on low beam would make any significant difference to the problem, and reiterated that an opaque barrier is needed. ■

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