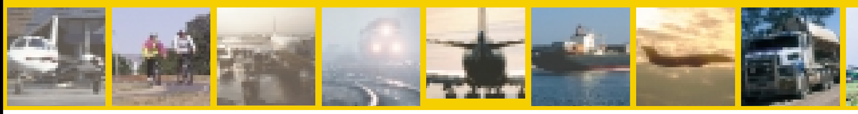


The ATSB makes a significant contribution to the safety of the Australian aviation industry and travelling public through investigation, analysis and open reporting of civil aviation accidents, incidents and safety deficiencies.

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.

Australian Transport Safety Bureau
PO Box 967,
Civic Square ACT 2608

Telephone: 1 800 621 372
E-mail: atsbsupp@atsb.gov.au

Website: www.atsb.gov.au

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

Panel hooks not engaged

Occurrence: 200101776

As the crew of the Boeing 747-438 applied take-off thrust to begin a flight from Sydney to Los Angeles, a noise described as "similar to an engine stall" was heard by all on the flight deck. After an immediate check of engine parameters revealed no abnormal indications, the crew elected to continue the take-off and subsequently heard no similar noises.

During the morning runway inspection conducted by Sydney airport safety staff, four items of what appeared to be aircraft parts were recovered from the eastern edge of the runway 34L undershoot. The parts were located approximately 60m south of the end of the runway. Later, a large piece of engine cowling was found near the runway 16 Localiser tower. That area was not normally included in runway inspections.

The parts were identified as engine combustion fairing components, originating from a B747-400 that had departed for Los Angeles. The aircraft had arrived safely, but with apparent engine and flap damage.

Technical examination of the fairing panels found that the items were released and ejected from the number-3 engine because of incorrect installation during maintenance activities before the flight. The examination found no evidence of deficiencies in the manufacture or maintenance of the panels that could have contributed to the release.

The design of the fairing panels allowed them to be fitted to the engine without the mounting hooks being engaged. Visual indications that the panels were incorrectly fitted were not obvious and the required inspections for correct panel installation failed to identify the problem. Maintenance documents for the number-three engine of the incident aircraft indicated that those inspections were first carried out after work was completed and again after the engine was ground run. However, neither inspection identified the problem.

A possible reason for the failure to identify the incorrect installation of the combustion fairings was the reluctance of the operator's maintenance staff to use the cold-stream duct access platforms. Without the platforms in place, inspection of the panel mounts for the signs of incorrect installation is difficult. Platforms have not been used because of instability within the duct, time taken in fitting and limits in access to the underside of the engine core.

The following factors were identified as significant to the occurrence:

1. The design of the engine combustion fairing allowed the individual panels to be installed onto the engine without the proper engagement of the upper mounting hooks.
2. During maintenance before the occurrence flight, the right side combustion fairing panel was fitted to the number-3 engine without the mounting hooks being engaged with the upper panel section.
3. Inspections following maintenance work and subsequently following engine ground running, failed to identify the incorrectly installed panel.

Recently completed investigations

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

Published January–February 2002

Occ. no.	Occ. date	Released	Location	Aircraft	Issue
200105698	3-Dec-01	25-Feb-02	Kingscote Aero. SA	Piper PA-31-350	Landing gear not extended – pilot distracted
200200022	7-Jan-02	15-Feb-02	Moruya Aero. NSW	Ayres Corp S2R-G10	Strong tail wind leads to take-off accident
200101776	24-Apr-01	12-Feb-02	Sydney Airport NSW	Boeing 747-438	Panel hooks not engaged
200100445	30-Jan-01	12-Feb-02	Melbourne Airport Vic.	Boeing 777	Fan blade failure – RB211
200101996	6-May-01	11-Feb-02	GUTEV (IFR) Other	Boeing 747-444 & B767-300	Infringement of separation standards
200101788	11-Apr-01	11-Feb-02	8 km WSW Archerfield Airport Qld	Enstrom R.J. 280C	Degraded take-off performance
200101999	5-May-01	6-Feb-02	Darwin Airport NT	Boeing 747SP-38	Incorrect bolts – fuel leak
200102326	29-May-01	6-Feb-02	Cairns Airport Qld	Boeing 737-476	Cabin fumes
200100889	25-Feb-01	5-Feb-02	46 km N Melbourne Airport Vic.	Boeing 737-377 & B747	Loss of seperation standards
200101537	10-Apr-01	5-Feb-02	85 km N Cairns Airport Qld	Aero Commander 500-S	Controlled flight into terrain
200101080	5-Mar-01	5-Feb-02	2 km S Canberra Airport ACT	Piper PA-28-181 & SAAB 340B	Infringement of separation standards averted
200103240	22-Jul-01	4-Feb-02	Christchurch Airport Other	Boeing 737-376	Inappropriate speed on wet taxiway
200105273	2-Nov-01	4-Feb-02	9 km N Mareeba Aero. Qld	Schweizer 269CB	Carburettor accelerator pump malfunction
200105351	4-Nov-01	4-Feb-02	Brisbane Airport Qld	Boeing 767-300ER	Runway confusion due to poor quality chart
200101747	18-Apr-01	4-Feb-02	5 km W Melbourne VOR Vic.	Boeing 737-376 & B737-377	Loss of separation standards
200004791	19-Oct-00	25-Jan-02	278 km E Darwin Airport NT	Beech 200C	Pressurisation system malfunction
200103655	8-Aug-01	23-Jan-02	Mount Isa Airport Qld.	Piper PA-31	Nose gear collapsed hydraulic failure
200103433	1-Aug-01	21-Jan-02	Canberra Airport ACT	Boeing 737-377	Motor vehicle infringed active runway
200102619	31-May-01	21-Jan-02	Sydney Airport NSW	Cessna 402B	Unfamiliarity with Sydney Airport
200100347	28-Jan-01	17-Jan-02	Logan Village Qld	Pitts S-1E	Ground impact during aerobatics

ERRATUM:
In the January-February 2002 issue of the ATSB supplement, the heading on Page 51 relating to the story on the Whyalla Airlines accident should have read "Whyalla airlines accident investigation reveals a range of complex issues that highlight the need for further research". This was an Editorial error and we apologise for any inconvenience to readers.

Safety briefs

Ground impact during aerobatics

Occurrence: 200100347

The pilot of the Pitts aerobatic aircraft was conducting an aerobatics practice session, during which he performed numerous vertical manoeuvres and steep turns, all involving apparent high "g" changes in direction.

A witness observed the aircraft conducting "knife-edge" manoeuvres and descending, immediately before the aircraft was lost to sight behind a ridge.

The pilot of another aircraft conducting aerobatic practice in the area subsequently located the burnt wreckage and notified air traffic control of the accident. The aircraft had struck the ground at about 100 kts while a wings-level 30 degree nose-down attitude. It was travelling in a direction opposite to that in which it was last seen. No witnesses observed the aircraft impact the ground.

The weather conditions were abnormally hot and humid during the period of the flight. The pilot normally did not wear a parachute, however he was wearing one on the accident flight. As a result, his body was positioned about 4 cm further forward than normal. That may have affected the pilot's perception of control positions when performing precision manoeuvres.

In the immediate vicinity of the crash site there were no prominent visual indicators for the pilot to judge the height of the aircraft above the ground.

Why the aircraft impacted the ground could not be established.

Pressurisation system malfunction

Occurrence: 200004791

While in cruise at flight level (FL) 230, on a flight from Darwin to Gove, the pilot of the aeromedical Beech Super King Air 200 aircraft noticed that the cabin altitude gauge was indicating just below 10,000 ft and that the cabin differential pressure gauge was indicating 4.2 pounds per square inch. Normal pressurisation schedule figures for the aircraft at that altitude were, 6,500 ft to 7,000 ft cabin altitude and 5.7 pounds per square inch differential.

Shortly after, the CABIN ALT WARN annunciator illuminated and the passenger oxygen masks deployed. That action was designed to occur at a cabin altitude of 12,500 ft. The pilot then donned a crew oxygen mask before descending the aircraft.

During the descent, the pilot attempted to isolate the problem by selecting the engine bleed air "off" then "on", one engine at a time. The air for the cabin pressurisation is sourced from the engine bleed air supply. Each time a system was isolated there was a corresponding rise in the indicated cabin altitude, however, both bleed air systems appeared to be operating. The pilot then levelled the aircraft at 10,000 ft, where the pressurisation system appeared to operate normally.

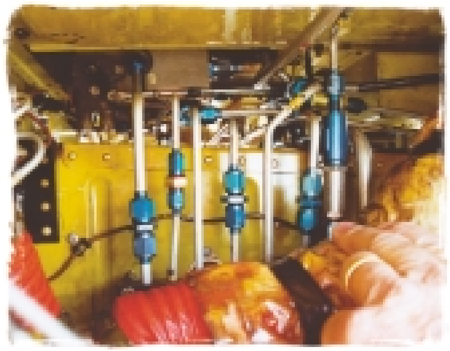
System testing found that the right environmental bleed air flow control valve was intermittently regulating at an incorrect pressure. The left flow control valve, remote pneumostat unit, was also found to be intermittently sticking in operation and was removed, cleaned and re-fitted.

A ground pressurisation check of the aircraft identified several small pressurisation leaks. As a result of that check, the outflow and safety valves were replaced due to leaks at the valve sealing surfaces, and several minor airframe pressurisation leaks were also repaired.

Nose gear collapse – hydraulic failure

Occurrence: 200103655

After the Piper Navajo had departed, the pilot reported that the landing gear would not retract. He re-selected the gear lever down, however the green down and locked light for the nose gear failed to illuminate. The pilot then tried, unsuccessfully, to extend the gear using the emergency hand pump.



A flyby confirmed that the nose gear was not fully down. The nose landing gear collapsed on landing.

Subsequent engineering examination revealed that a rigid hydraulic pressure line had fractured. As a result, all the fluid from the hydraulic reservoir, including that portion in the power pack emergency sump, had drained out. The pilot was then unable to retract or extend the gear using either the normal or emergency systems.

Specialist engineering examination of the line confirmed that it failed due to fatigue cracking. The line was subjected to torsional or bending pre-loads causing the line to crack. The pre-loads were most likely introduced during assembly, where one fitting was tightened sufficiently to prevent free movement of the line, when the opposite end was brought into position. The maintenance documents did not reveal if the line was as fitted during aircraft manufacture or during a subsequent repair action. The aircraft had a total of 12,745 hours time in service at the time of the incident.

Incorrect bolts – fuel leak

Occurrence: 200101999

As the Boeing 747-SP taxied into the parking bay, a major fuel leak from the number-2 engine developed.

Engineering inspection revealed the source of the leak to be the high pressure hose at the fuel flow transmitter inlet gasket. The bolts securing the transmitter to the inlet pipe were of incorrect length, causing the "O" ring seal between the transmitter and the inlet pipe to become pinched. The bolt thread area had been damaged due to the incorrect length bolts. Engineers fitted a new transmitter, "O" ring and bolts of the correct length. They then test-ran the engine, which operated normally.

The aircraft had recently undergone a "Super A" (SA) service check at a maintenance facility. The SA maintenance check is required to be completed every 2,000 hours aircraft time in service. During the servicing, engineers changed the number-2 engine high pressure fuel shutoff valve. To change the valve, engineers had to remove the fuel line between the valve and the fuel flow transmitter. When the line was removed, the engineer placed the attachment bolts in a bag that was tied to the removed pipe. The bolts attaching each end of the pipe differed in length by 1/8 inch and were identified by different part numbers.

A different engineer carried out the re-installation. The engineer who re-installed the line was unfamiliar with the task. Although the Boeing Maintenance Manual references were available, the engineer did not use them as the manual was located some distance from the job site and the engineer did not consider that a manual was required for the re-connection of a pipe and the re-installation of bolts. The re-installation was commenced about halfway through the engineer's shift and took 10 hours to complete. That required him to work overtime until 0200 (approximately a 13 hour shift) to complete the task. After the fuel line was re-installed, engineers test-ran the engine, which operated normally. The fuel leak incident occurred 11 days later.

Management at the maintenance facility subsequently issued a safety alert and maintenance memo, stressing the importance of following the correct procedures and proper maintenance practices.

Fan blade failure – RB211

Occurrence: 200100445

The crew of a Boeing 777 aircraft reported that during the take-off roll they heard a loud bang, so they rejected the takeoff. The aircraft had sustained a failure of the left engine, a Rolls Royce RB211-892-17 (Trent 800 series) engine, serial no. 51197. No fire indications were received on the flight deck.

Preliminary inspection of the damaged engine revealed the complete liberation of one fan blade from the rotor disk, with the remaining fan blades experiencing severe damage of the outer length. Severe disruption of the fan shroud and acoustic linings occurred, with liberation of debris onto the runway. The blade failure was a contained event, with no perforation of the engine kevlar containment shroud having occurred in the initial impact area. A small amount of debris was ejected from the engine intake during a compressor surge that occurred at the time of the failure leading to minor damage to the forward fuselage. The right engine sustained minor damage, with one fan blade receiving a leading edge chip and some tearing of the aft acoustic insulation.

The cabin crew reported that immediately following the engine failure, several passengers released their seatbelts and left their seats. The cabin crew also reported that the Passenger Entertainment Landscape Camera system remained operating during the event and showed the emergency services vehicles approaching the aircraft. Those images caused distress to some passengers.

Metallurgical examination showed the fan blade to have released from the disk as a result of advanced fatigue cracking of the blade root. The development of fatigue cracking was attributed to the breakdown of the lubricant used to prevent galling between the blade root and the disk socket. The resulting galling produced irregularities in the stress distribution within the blade root, promoting the initiation of fatigue cracking. Physical defects, or other material or manufacturing anomalies, were not identified.

Controlled flight into terrain

Occurrence: 200101537

The Shrike Commander 500S departed from Cairns airport at 0707 Eastern Standard Time (EST) on a charter flight under the Instrument Flight Rules (IFR). Shortly after takeoff, the pilot requested an amended altitude of 4,000 ft and indicated that he was able to continue flight with visual reference to the ground or water. The IFR Lowest Safe Altitude for the initial route sector to be flown was 6,000 ft Above Mean Sea Level (AMSL).

Air Traffic Services (ATS) recorded data indicated that approximately 13 minutes after departure, the aircraft disappeared from radar at a position 46 NM north of Cairns. The aircraft was cruising at a ground speed of 180 kts and an altitude of 4,000 ft AMSL. An extensive search located the wreckage the following afternoon on the north-western side of Thornton Peak, at an altitude of approximately 4,000 ft (1219 metres) AMSL. The aircraft was destroyed by impact forces and post-impact fire. The pilot and three passengers received fatal injuries.

Damage to the aircraft structure, engines and propellers was extensive and indicated a straight and level flight attitude at the time of impact. The aircraft was considered capable of normal flight prior to the accident.

The pilot in command held a Commercial Pilot (Aeroplane) Licence and a Command Multi-Engine Instrument Rating. At the time of the accident the pilot had accumulated a total of 9,680 flying hours, including 2,402 hours on Shrike Commander aircraft. He was reported to have been fit and well rested prior to the flight.

The Bureau of Meteorology Area Forecast at the time of the accident indicated south-easterly winds at 20 kts and significant cloud, consisting of Cumulonimbus, Stratus and Cumulus, from 2,500 to 40,000 ft. Forecast weather conditions included showers, thunderstorms and fog. Turbulence was predicted to be occasionally moderate below 5,000 ft.

Radar data recorded by Air Traffic Services, and witness reports, indicated that the aircraft was flying straight and level and maintaining a constant airspeed.

Why the pilot continued flight into marginal weather conditions, at an altitude insufficient to ensure terrain clearance, could not be established.

Australian Transport Safety Bureau

Rotor blades can fail when hours exceeded

By Sam Webb and Richard Batt

IN a recent Australian accident the main rotor blade of a Robinson R22 Beta helicopter separated in flight resulting in fatal injuries to the pilot and moderate injuries to the passenger. The resulting ATSB investigation found that the failure mode of the main rotor blade was identical to the failure mode documented in a 1990 occurrence and on manufacturer tested-to-failure blades.

The report concluded that under-reporting of the helicopter flight time probably resulted in an actual service life of the failed main rotor blade in excess of the manufacturers stated limits. This information was gleaned following a review of the helicopter logbooks versus company invoices and parts, and fuel usage.

In 1949 the International Civil Aviation Organisation adopted Annex 8, defining International Standards for aircraft airworthiness and has issued several revisions since it's adoption. The European Joint Aviation Authority, U.S. Federal Aviation Administration, Transport Canada, and the Australian Civil Aviation Safety Authority have all modelled their aircraft and equipment airworthiness standards to this annex. Strict adherence to the spirit of this annex should ensure continued aircraft airworthiness.

The assurance of continued aircraft airworthiness relies upon a number of things including:

1. The regulatory authority defining and enforcing airworthiness type design and maintenance regulations and airworthiness directives.
2. The manufacturer demonstrating conformity to type design standards and providing current instructions for continued airworthiness.
3. The maintenance personnel inspecting and maintaining aircraft based on the airworthiness regulations, airworthiness directives, and manufacturers' instructions.

Regulatory authorities rely on information given to them by the manufacturers during the aircraft type certification process. The manufacturers must demonstrate conformity (or airworthiness) of the design to fulfil applicable requirements. They demonstrate this conformity through testing of the aircraft and components. The regulatory authorities, along with the manufacturers, then use this information to establish recommended and mandatory (airworthiness limitation) periods for components and structural items (life-limited parts). The airworthiness limitation replacement schedule section of a manufacturer's maintenance manual specifies mandatory replacement times of the aircraft components.

The ultimate safe operation of an aircraft depends on:

1. Whether the aircraft is airworthy. The aircraft must be in full conformity with applicable airworthiness standards.
2. Whether the aircraft is capable of safe flight. The aircraft may be in full conformity with airworthiness standards and still not be capable of safe flight (example icing on the wings).
3. Whether the aircraft is properly equipped for the proposed operation.

The owner or operator of an aircraft has primary responsibility for the continued airworthiness of the aircraft. The safe operation of the aircraft during a flight is the responsibility of the pilot-in–command. Maintenance personnel depend on pilots and the operator for correct reporting of aircraft operation in order to conform to the published component limitations.

The implications are clear: if the replacement times defined in the manual are not adhered to because of incorrect documenting of aircraft hours (the item exceeds its life limit) the aircraft is not airworthy.

Component testing

The manufacturer's tested-to-failure data on the component is often mistakenly used to support the belief of some individuals that the component will not fail if retained in service beyond it's scheduled replacement time. The false assumption is that if the component failed during testing at for example, 10,000 operating hours and the retirement time is 2,000 operating hours, then it can be safely flown until 3,000 operating hours. What that person may not take into account is that during testing of the component, several samples are tested from the parent component population. Among the many samples, some may fail at a value significantly lower that the average or mean value of the test sample. These events are referred to as "outliers" in the test sample and if they can be proven to be caused by an error, are sometimes discounted when establishing the failure mean value. Therefore, it is possible to have a component fail catastrophically at a value significantly below the failure mean value. This is because the failure is also dependent upon factors such as usage, maintenance, and environment among others.

Human factors issues

Some individuals are natural risk-takers while others are risk averse. How do we influence our decision-making to be less risky? One way is to accentuate the positive. Research has shown that when we make a choice between two actions, where one involves a gamble and the other is a certainty, our decision is influenced by whether the problem is presented or framed as a choice between losses or between gains. When the focus is on losses, we tend to make more risky decisions than when the focus is on gains. How a problem is framed can have a significant influence on what course of action we decide to take.

For example, if the pilot/owner considered the options from a loss perspective, they may have focused on the loss of flight time and money that would have resulted from taking the helicopter out of service and replacing the blade, against the helicopter continuing to operate and generating income. They also may have calculated the probability of the failure of the blade as remote, even though the consequences would be severe. Looking at the situation this way could have encouraged the pilot to take a chance and continue operating the aircraft with the replacement time on the blade expired. The false gain in this case would have been continuing to successfully generate income for continued operation of the business without the expense of a replacement blade.

On the other hand, if the pilot/owner had decided to replace the blade when it was due, they would have continued operating the helicopter safely and successfully generated funds for continued operation. This action would have ensured the protection of the good name and reputation of the business. The positive gain from this action would have been the intangible factor of continued safe operation of the helicopter. Unfortunately, intangible benefits are not readily apparent and cannot be quantified in terms of profit. The negative economic impact of the outlay of funds for the purchase of a replacement blade and the impact on company profits could have negatively influenced the decision.

The decision to overfly a component or part by consciously under-reporting the operating hours of an aircraft is an example of one of the five well known hazardous attitudes adopted by pilots or operators. These five attitudes are:

1. The anti-authority attitude- found in individuals who resent authority.
2. The impulsivity attitude- found in individuals who feel the need to do something, anything, immediately.
3. The invulnerability attitude- found in individuals who believe that accidents always happen to others, not them.
4. The macho attitude- found in individuals who feel they have to try and show their superiority.
5. The resignation attitude- found in individuals who feel they have no control over their fate.

To purposely disregard the manufacturer's recommended replacement time of a component by under-reporting aircraft operating hours is a classic example of the invulnerability hazardous attitude.

Figure 1: The broken rotor blade

Conclusion

The various methods for assuring continued aircraft airworthiness are complex, but the principle is simple. The aircraft must continue to comply with the requirements specified in the type certification basis. If the aircraft operating hours are not recorded accurately, these standards cannot possibly be met. Through testing, the manufacturers and regulatory authorities know what the safe limits are on these parts. Overflying component retirement times and inspections is not worth the risk. The ultimate result could be serious injury or the tragic loss of someone's life. For further details on this investigation please visit the ATSB website at www.atsb.gov.au and refer to Occurrence Report BO/200003267.

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 always 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 also available from the Internet at www.atsb.gov.au

Chris Sullivan
Manager CAIR

Flying training (CAIR 200005217)

A flying school has a Grade Three flight instructor providing flying training unsupervised by either a CFI or Grade One flight instructor in contravention of Part 40 of the Civil Aviation Orders (CAOs). The CFI was away and the Grade Three instructor was operating unsupervised and authorising student solo flights.

CAIR note: CAO 40.1.7, paragraph 9.1.(c) stated:

A Grade Three instructor may after having logged at least 100 hours of elementary instruction as defined in subparagraph (b) of paragraph 4.2 and with the written approval of the chief flying instructor:

(i) give flying training under indirect supervision; and

(ii) authorise students to fly solo in those sequences in which the student has previously completed solo practice.

For the interpretation of "indirect supervision", CAO 40.1.7 paragraph 9.1.4 stated: Indirect supervision must include the following:

(a) periodic surveillance;

(b) assessment of the standard of instruction provided;

(c) standardisation of the methods of instruction used;

(d) guidance on the conduct of all flying school operations that are not required to be carried out under direct supervision.

CASA was advised of the allegation.

Helicopter landings in park (CAIR 200005540)

A helicopter operator had landed in [a park] *to collect passengers and then returned them some time later. I am concerned for bystander safety and of the legality of such an operation. The registration of the aircraft was* [provided].

CAIR note: The operator was contacted who advised that the company regularly conducted such passenger joy flight charters and had the permission of the local council in writing to operate from the park on this particular occasion. The helicopter had carried a crewman for passenger control and to manage site safety on arrival and departure. The approach and departure paths were kept well clear of residential areas.

Frequency monitoring (CAIR 200005586)

The failure to maintain a continuous listening watch on VHF frequencies by [regional airline] *Dash 8 crews between Melbourne and Tasmanian ports is becoming increasingly frequent. Air traffic control staff are frequently required to make three or four transmissions to Dash 8 crews before receiving a response or readback. Crews often apologise for not maintaining a continuous listening watch as they were "on a company frequency". Complaints from Dash 8 crews about poor frequency are also often implied, but not confirmed by other operators' crews in similar aircraft types on the same routes and at the same levels.*

CAIR note: The de-identified content of the report was forwarded for the information of the Airline concerned. No further reports of this concern have been received.

Close call in circuit (CAIR 200005679)

I have held a PPL for nearly 20 years, but these days I don't get to fly as regularly as I would like, so yesterday lunchtime I went down to [GAAP aerodrome] *to do a few practice circuits in a Tomahawk. Also in the circuit at that time was an Eagle aircraft – I can't remember its callsign. During my first circuit, I heard over the tower frequency that the Eagle was in danger of overtaking another aircraft somewhere late in the pattern and had to go around.*

Flying my second circuit, I was on final and cleared for touch and go, nicely on the centreline of runway 24L, passing through about 300 ft AGL and feeling reasonably well pleased with my set up for the landing, when the incident occurred. This was at a few minutes after 1pm local.

I was of course focussed strongly on the runway ahead and the handling of my own aircraft, when in my peripheral vision high to the left I suddenly became aware of something very large and very close. It was the Eagle, apparently turning late onto final, and it passed directly overhead my aircraft within 50 ft – possibly a lot less. I certainly got a very good look at its wheels!

I immediately closed the throttle to lose some altitude – not what one likes to do at that stage of final – and called on tower frequency and said the Eagle was very close and directly above me. The tower instantly instructed the Eagle to go around. End of incident, and I continued a low approach from there. I don't hold the tower controller in any way responsible for this. I believe that the Eagle had been instructed to follow me and it would appear that the pilot, unable to visually locate me against the ground, had just carried on regardless in an appalling and potentially catastrophic display of poor airmanship.

This raises an issue of circuit flying for high

CAIR reports 1 July 2000 to 31 December 2001

REPORTS RECEIVED					REPORTS ACTIONED		
ATS	FA/ Others	Flight crew	Maintenance/ Ground	Total	Forward for action	Request response	Response received
60	105	256	80	501	327	217	194

performance aircraft. Many years ago I flew a lot of hours in Mooneys. I had to learn how to fit into the pattern with the Tomahawks and 152s and even the occasional Tiger Moth. I would suggest that when [aerodrome] *is using its parallel runway system, as was the case yesterday, any circuit flying in Eagles, Mooneys and the like be done on* [runway L/R]. *This would leave the* [runway R/L] *circuit for the slower training aircraft, which often have very inexperienced pilots at the controls. I can only speculate that if a student in the early stages of solo had been in that Tomahawk (rather than someone like myself with several years and a few hundred hours behind him) things might have ended up a whole lot worse.*

CAIR note: The de-identified content of the report was forwarded to Airservices Australia for their information.

TCAS aids situational awareness in MBZ (CAIR 200005983)

A B737 was climbing after departure. At 6NM DME distance from [departure aerodrome], *the crew received a TCAS indication of descending inbound traffic, 10NM ahead and 2000 ft above. The B737 crew turned right and levelled off, and then called the pilot of the other aircraft on the MBZ frequency. The pilot of the other aircraft responded advising the B737 crew that he had heard their taxi and line-up calls and had the B737 in sight. The B737 crew then sighted the other aircraft at an estimated 4 NM distance. Due to the B737's manoeuvre, the crew did not receive a TA or RA warning from the TCAS.*

The B737 crew later stated that without TCAS, the B737 would have climbed through the other aircraft's (descending) level on a reciprocal track with only a few miles separation. They added that, had the other pilot transmitted his presence and intentions in response to the B737 line-up call, the crews could have arranged separation and the evasive manoeuvre would not have been necessary.

CAIR note: In discussion, the reporter stated that this could have been a serious incident if the B737 crew had not initiated the evasive manoeuvre. While the other pilot was aware of the B737, had it in sight, and would have ensured separation visually, the B737 crew could have been alarmed if they first sighted the other aircraft at close range.

Maintenance by telephone

(CAIR 200006087)

The B737 was at [location] *when the crew discovered that the cargo door was jammed. Engineers on the site assessed the problem as associated with the door counterweight, which is connected to the door by a cable.*

In order to permit the aircraft to return for maintenance at [capital city], *company staff contacted engineers employed by* [another company] *based at the aircraft's location. Using telephone instructions, they had an AME (who was not licensed for work on the aircraft type) cut the cable connecting the cargo door to the counterweight. No written record of this work was made.*

CAIR note: The basis of the reporter's concern was the principle of using non-qualified labour to carry out an unfamiliar task. The reporter claimed that the severing of the cable might have led to secondary airframe damage or caused injury to personnel, particularly the engineers tasked with replacing the severed cable. The de-identified content of the report was forwarded to the Airline and to CASA for their information.

Response from airline: The reporter has the facts a little distorted; there was a problem with the counterweights in the door in that the balance mechanism had seized and thus the door could not be shut.

The pilot contacted engineering in the [local] area; however, the engineers did not approve any work to be done on the aircraft and did not contact the [other company] engineer. The pilot (who apparently had some engineering experience) asked the [other company] engineers to remove the cable end fitting to allow him to shut the door – the cable was not cut. This allowed the door to be closed. There was no entry made in the maintenance log; however, the pilot informed engineering when inbound, and also on arrival. The matter has been addressed with both Flying Operations and Line Maintenance.

Response from CASA: CASA's Enforcement and Investigation Branch has conducted an investigation of the matters raised in the CAIR report. I have been advised that a recommendation has been made to pursue this matter further.

At this time, CASA is not in a position to provide you with a formal response to conclude this matter.

Overwing exit briefings

(CAIR 200200015)

Now that [airline] *operate all aircraft at minimum legal complement, the B737 does not have any crew to operate and brief passengers at the overwing exits. The B737-300 has 2 window exits and the B737-400 has 4 window exits. With only 4 crew, who are door primaries, there is nobody for the overwing exits.* [The airline] *does not tell the passengers that there is no briefing for passengers seated at the overwing exits.*

In other parts of the world, the passengers must be briefed and moved if they don't think that they could operate the emergency exits. Our passengers don't know.

Response from airline: The reporter is quite accurate regarding the absence of a briefing procedure for passengers seated at over wing exits regarding operation of these exits. Further, I wish to state no current regulatory requirement for such a briefing exists.

[The airline] is in the process of developing a briefing procedure for these passengers. This procedure entails extensive collateral material including updated decals, specific over wing passenger briefing cards, a training video for cabin crew, training, manual revisions and their approval by CASA.

The procedure of briefing passengers seated at over wing exits will be introduced when all of the material has been developed, approved, distributed and trained. This will be complete well in advance of the regulatory requirement foreshadowed in CASR 121.

Response from CASA: It is presently not mandatory under current civil aviation legislation for operators to conduct briefings for passengers seated at the overwing exit.

This will be addressed as part of CASA's program of Regulatory Reform. Proposed CASR Part 121A.285 "Briefing Passengers Before Take-off" states:

"...an operator must ensure that passengers seated in an exit seat row in which a qualified crew member is not also seated are given individual briefings prior to flight as to the actions to be taken in the event that it becomes necessary to use the exit."

CASA is satisfied that the new CASR Part 121A will ensure that all operators of Australian registered aircraft provide a briefing of passengers at overwing exits to assist and expedite evacuations through unmanned exits.

While [airline] is not conducting overwing exit briefings, the airline has given CASA an undertaking that by April 2002 it will have completed training of crew and produced individual briefing cards for passengers seated at unmanned emergency exits prior to take-off.

CAIR note: The ATSB is monitoring the introduction of new procedures.

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