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

Published July–August 2001

Occ. no.	Occ. date	Released	Location	Aircraft	Issue
199906121	28-Dec-99	4-Jul-01	Townsville Airport, QLD	Fairchild SA227-AC	Nose wheel steering not engaged
200003293	6-Aug-00	4-Jul-01	Norman Reef (ALA), QLD	Bell 206B(II)	Loss of tail rotor effectiveness (LTE)
200102129	10-May-01	4-Jul-01	S Kingscote SA	B 767-338ER	Panel light rheostat failure
200004871	23-Oct-00	4-Jul-01	Melbourne Airport, VIC	Saab SF-340A	False tailpipe hot warning
200004709	16-Oct-00	9-Jul-01	Sapda (IFR)	B 747-400	Traffic confliction assessment
200102124	13-May-01	10-Jul-01	E Telfer, NDB, WA	Piper PA-31	Blocked fuel injection nozzle
199905037	27-Oct-99	11-Jul-01	W Hernani, NSW	Cessna P210N	Airframe inflight breakup
200004880	24-Oct-00	18-Jul-01	SSW Taree, NDB, NSW	Piper PA-31-350	Traffic confliction
200101782	23-Apr-01	20-Jul-01	W Dalby (ALA), QLD	Embraer EMB-120 ER	Hydro-mechanical unit (HMU) failure
200005967	12-Dec-00	20-Jul-01	Tamworth Airport, NSW	Hiller UH-12E	Communications failure
200001153	3-Apr-00	24-Jul-01	Shepparton Aero., VIC	Cessna 172M	Stall during go-round
200005295	11-Nov-00	25-Jul-01	West Maitland, NSW	BAe 146-300	Short Term Conflict Alert
200000933	2-Mar-00	25-Jul-01	Atmap (IFR)	B 767-338ER	Incorrect time entered on electronic flight strips
200100622	15-Feb-01	27-Jul-01	Bangkok Airport	B 747-438	Fuel leak from number–four engine
200003056	18-Jul-00	3-Aug-01	EI Questro, (ALA), WA	Kawasaki 47G3B-KH4	Fuel exhaustion
200101729	20-Apr-01	3-Aug-01	WSW Goulburn, NDB, NSW	Beech A36	VFR into IMC–accident
200004914	26-Oct-00	3-Aug-01	Lilydale (ALA), VIC	Beech A36	Incorrect position information used by ATC
200100741	22-Feb-01	8-Aug-01	E Los Angeles Airport	B 747-438	Smoke and fumes in the cabin
200101065	10-Mar-01	20-Aug-01	Evatt, ACT	Cameron Balloons	Fire/explosion
200001876	20-May-00	24-Aug-01	E Cairns Airport, QLD	De Havilland	Smoke in the cockpit. Reverse current relay failure

Hot air balloon occurrence statistics 1980–2001

Between 1980 and 30 June 2001, 42 accidents and 150 incidents involving hot air balloons were recorded by the Australian Transport Safety Bureau. In that time, there were 17 fatalities, 34 serious injuries and 73 minor injuries. The following is a sample of occurrence summaries from the ATSB database.

Occ no. 200101491, 30 Mar 2001
Type: Kavanagh Balloons
During the approach to land the balloon struck power lines. The collision caused electrical arcing which cut through one stainless steel 'flying' cable and damaged a second. The 'flying' cables attach the basket and burner frame to the envelope. The power lines were undamaged although the related power surge caused a blackout condition in several suburbs.

Occ. no. 199903456, 17 Apr 1999
Type: Cameron
The balloon started to lose gas while in the cruise at about 350ft AGL. A hard landing was made on a road and the balloon envelope deflated over the power lines. The balloon was later cold-inflated and a small kink was found in the rip line below the bottom pulley. This shortened the stop line and stopped the parachute valve from fully sealing.

Occ. no. 199901049, 21 Feb 1999
Type: Kavanagh
The pilot reported that his balloon followed three others on track for Elsternwick Park (Melbourne, Vic) where the three landed successfully. By the time the balloon was on final approach the wind had changed. The balloon was climbed to 400ft AGL to seek other landing site possibilities. The wind blew the balloon over Brighton towards Port Phillip Bay. The pilot decided to land on Brighton Beach. After briefing the passengers the pilot purposely dragged the basket through the treetop foliage to slow the balloon for landing. The basket collected more foliage than anticipated and swung briefly. The bottom of the basket clipped the edge of a verandah on a house. Roof tiles and spouting was damaged. The balloon landed on the lawn of the house about eight metres short of the sea. It was the pilot's tenth flight as pilot-in-command of charter flights over Melbourne's built-up areas. The pilot was debriefed by the chief pilot and re-briefed on landings. The pilot was required to undergo a further 100 hours of commercial operations over built-up areas, and further flying in-command-under-supervision over Melbourne.

Occ no. 199701767, 1 June 1997
Type: Cameron
The operator reported that after the balloon rig was towed over bumpy roads to the launch site four attachment bolts on the burner assembly became loose. The operator ceased operations with the burner system pending advice from the manufacturer about the security of the bolts. The operator forwarded full details to the Civil Aviation Safety Authority Airworthiness branch.

Occ no. 199600829, 5 Mar 1996
Type: Kavanagh
The pilot requested and was cleared to operate the balloon not above 2,000ft. The tower controller instructed the pilot to remain clear of cloud. The pilot acknowledged this instruction and said he would comply. The balloon then climbed into cloud and was lost from sight. There was traffic in the control zone at the time.

Occ no. 199501095, 18 Apr 1995
Type: Thunder&Colt
The pilot rejected the flight shortly after take-off from a golf course and landed in the middle of the fairway 70 metres from the take-off point. The ground crew assistant was called to tow the balloon by a trailing rope to the edge of the fairway as the pilot did not want the recovery vehicle to drive onto the fairway. The ground crew member entered the basket and operated the burners and the pilot towed the balloon to the side of the fairway. When the balloon touched the trees the gas was turned off at the tanks and the envelope was deflated. The basket rolled onto one side on sloping ground. The ground crew member struck her head on the burner controls, lighting both burners for several seconds as the gas burnt out of the supply lines, and suffered burns to her upper body and inhalation damage to her oesophagus. The pilot received minor burns.

Occ no. 199400203, 24 Jan 1994
Type: Thunder&Colt
The balloon tracked across the R546 active firing range at an altitude of about 500ft AGL.

Occ no. 199003479, 2 Oct 1990
Type: Cameron
Balloon was caught by wind and carried out to sea and landed in the water approximately five kilometres offshore.

Occ no. 198904670, 12 Feb 1989
Type: Kavanagh
Fuel hose fitting to burner was reduced in efficiency due to a permanent bend in plastic insert of line.

Occ no. 198803972, 30 Dec 1988
Type: Cameron
Balloon damaged during release of gas after touchdown when gas ignited.

Occ no. 198902533, 13 Jan 1989
Type: Thunder&Colt
Elderly passenger did not take up landing position as briefed and suffered a broken leg. Pilot suggested that passengers be specifically told not to sit down in basket prior to touchdown.

Occ no. 198103732, 6 June 1981
Type: Unknown
During approach to land the pilot observed rocks in intended landing area. The burner was applied to lift the balloon over obstacles. Nil response (pilot light extinguished by wind). Spill valve operated but basket struck ground heavily. Pilot thrown out.

Occ no. 198301638, 18 June 1983
Type: Cameron
Balloon collided with power cables shortly after lift off. Change in wind direction was not detected prior to lift off. Failure to deflate when wind change became apparent.

Occ no. 198702731, 30 May 1987
Type: Kavanagh
Balloon landed in paddock in overcast conditions and pilot failed to see a powerline in time to take evasive action. Basket struck powerlines.

Safety briefs

Radio failure

Occurrence Brief 200005967

An incident at Tamworth on 12 December 2000 has highlighted the need for pilots to understand what to do in the event of radio failure. In this incident, the helicopter should have remained clear of controlled airspace.

The pilot flew the helicopter into the Tamworth control zone without a clearance after suspecting either the radio was not working or the tower was closed. The pilot transmitted intentions and the helicopter's position on the tower frequency and entered the circuit area in between a CT4 landing on runway 12R and another on final approach.

There were five other aircraft in the circuit at the time and the controller broadcast an alert after sighting the helicopter. The pilot landed and shut down the helicopter at the base of the tower. Examination of the radio revealed the frequency selector gears had slipped out of mesh and position.

Aeronautical Information Publication (AIP), ENR 1.1 section 9.2 dated 10 August 2000 detailed the requirements for a Visual Flight Rules (VFR) flight entering Classes C or D airspace. Paragraph 9.2.1 stated that before reaching the boundary of Classes C or D airspace the pilot must establish two-way communication with the Air Traffic Control on the frequency notified on the chart, in the Enroute Supplement Australia or AIP supplement or NOTAM, and obtain a clearance.

Enroute Supplement Australia, EMERG 2 detailed the procedure for flights outside controlled airspace under VFR that had experienced communications failure. It stated that the pilot should:

- Stay in Visual Meteorological Conditions
- Broadcast intentions
- Remain VFR and land the aircraft at the nearest suitable non-MBZ (Mandatory Broadcast Zone) aerodrome
- Report arrival to Air Traffic Services if on SARTIME or reporting schedules. ■

Fuel injector blockage

Occurrence Brief 200102124

A blocked fuel injection nozzle in the left engine of a Piper Navajo led to a high cylinder head temperature and its eventual shut down following a vibration through the airframe.

The aircraft had approached the top of climb from Punmu in Western Australia in May this year when the pilot noticed the cylinder head temperature was higher than normal. The pilot enriched the mixture to attempt to control the temperature when it exceeded the company maximum of 400 degrees centigrade.

After reaching cruise altitude and speed a vibration was experienced. After confirming that the vibration was from the left engine the pilot decided that further troubleshooting was not possible and so shut it down and feathered the propeller. As last light was a concern the pilot diverted to an alternate aerodrome and landed.

A maintenance investigation found that the fuel injection nozzle of the number-six cylinder in the left engine had become blocked. That cylinder assembly had recently been changed and the engineer thought that a small piece of ceramic might have been dislodged when the nozzle and supply line was disturbed.

Navajo engines normally have one cyclinder head temperature probe, which is fitted to the number-six cylinder of each engine. The engine in the occurrence aircraft was observed to be running at a high cylinder head temperature when the cylinder with the cylinder head temperature probe began to overheat due to the leaning effect of the blockage. The nozzle was cleaned and the aircraft subsequently returned to service. ■

High pressure fuel leak

Occurrence Brief 200100622

Shortly after take-off from Bangkok Airport on 15 February 2001 the crew of a Boeing 747 aircraft on a regular public transport flight shut down the number-four engine following a fire warning indication. The fire warning resulted from a fuel leak from the left and right fuel manifold connectors.

The fire warning stopped after the crew discharged two engine fire bottles and shut down the engine. The crew then decided to return to their departure point where the aircraft landed safely without further incident.

The Boeing 747-438 aircraft was fitted with four Rolls Royce RB211-524G engines. A preliminary examination of the number-four engine by the operator revealed evidence of heat damage around the engine combustion area. The damage consisted of localised melting of wiring and clamps but there was no evidence of structural damage to the cases. The engine underwent a detailed examination and a test run in an engine test cell to determine the source of the heat damage.

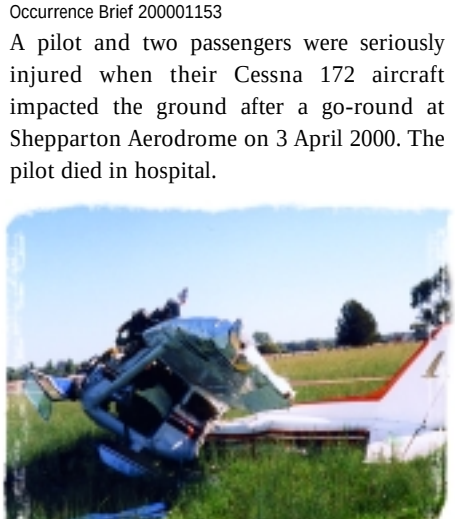
The test run revealed a fuel leak from the left and right fuel manifold connectors. It was established that the connectors were correctly lockwired, however, when the torque was checked, it was found to be of a lower value than that specified by the engine manufacturer's maintenance manual. The fuel manifold connectors were re-torqued in accordance with the engine manufacturer's maintenance manual and another test run was completed without further incident.

As a result of this incident, the operator has raised an internal Maintenance Memo to highlight this maintenance deficiency and the relevant procedures to its maintenance personnel. ■

Go-round tragedy

Occurrence Brief 200001153

A pilot and two passengers were seriously injured when their Cessna 172 aircraft impacted the ground after a go-round at Shepparton Aerodrome on 3 April 2000. The pilot died in hospital.



The pilot had attempted to land the aircraft on runway 18. It was estimated during the investigation that the runway crosswind was probably between 7 and 15 KTS and tail wind between 5 and 12 KTS.

The go-round was commenced as the aircraft neared the end of the runway. The aircraft continued south beyond the runway, drifting east with the wind and over the southern boundary fence. It turned left, banking sharply, and tracked eastward at low altitude with its wings rocking and a pronounced nose-high attitude. A number of witnesses observed the nose to suddenly drop and the aircraft adopted a steep nose-down attitude before impacting the ground.

The investigation found that due to the late decision to abort the landing the pilot was possibly distracted by the need to avoid a tree line approximately 20 metres tall running east-west beyond the aerodrome boundary. The airspeed was low and the pilot may have experienced difficulty with the aircraft's climb performance.

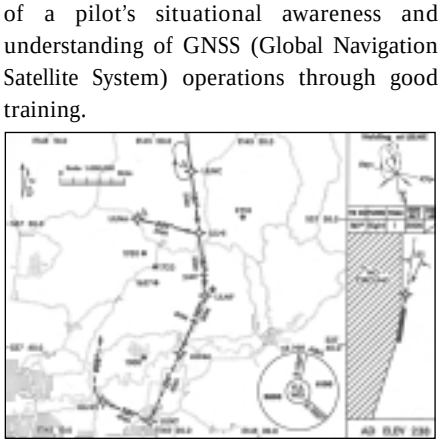
The reason for the sharp left turn could not be determined. The turn resulted in the aircraft flying downwind with reduced climb angle performance and decaying airspeed at the same time as the pilot tried to increase the aircraft's height. It is not known when the flaps were retracted however, retracting them at low level would have seriously degraded the aircraft's immediate climb performance.

Retracting the flap with a high nose attitude probably reduced the aircraft's speed to the extent that the wings stalled at a height that was insufficient to allow recovery before the aircraft impacted the ground. ■

GNSS awareness a saviour

Occurrence Brief 200004914

An incident during an approach at Lilydale ALA last year has highlighted the importance of a pilot's situational awareness and understanding of GNSS (Global Navigation Satellite System) operations through good training.



The pilot had conducted a Global Positioning System (GPS) instrument approach to Lilydale from waypoint Charlie (15 NM north of Lilydale). As the aircraft approached waypoint India (5 NM south of Charlie) the controller advised the pilot that the aircraft was two-and-a-half miles east of Charlie. When the pilot advised passing waypoint India the controller responded that the aircraft was two-and-a-half miles east of Charlie.

The pilot disregarded the controller's information and conducted a missed approach. Soon after the pilot visually established the aircraft's position on the GPS approach track. The pilot continued the approach visually.

The pilot later reported that he had checked available information and verified the aircraft was tracking via the correct GPS track. When the controller advised that the aircraft was 2.5 NM east of Charlie the GPS indications were within 0.13 NM of waypoint India. The pilot reported that he checked the GPS function with an accompanying pilot and found no error.

The investigation revealed that the controller had never seen this approach being flown. The controller had misread the approach plate and displayed incorrect waypoints on the air situation display.

In response, Airservices Australia developed an electronic map based on verified data on the air situation display, including the waypoints associated with the Lilydale, Moorabbin and Avalon GPS approaches. ■

Non-VMC fatality

Occurrence Brief 200101729

A pilot and passenger were fatally injured when their Beechcraft Bonanza A36 collided with dense woodland 4 NM to the south-west of Goulburn Aerodrome on 20 April 2001.

The aircraft had departed Swan Hill at approximately 1600. The pilot had left details of the flight at the point of departure and arranged to phone a contact on arrival at Goulburn. At about 1735 a radar trace consistent with the flight path of the aircraft was identified approaching Goulburn from Yass. The aircraft disappeared from radar 7 NM west of Goulburn at 1744 consistent with the flight profile of a planned descent to Goulburn. The pilot did not report to the contact by phone as planned and a search for the aircraft commenced the next morning.

The descent path of the aircraft through the trees indicated a rate of descent in excess of normal controlled flight. Examination of the wreckage found no evidence of any defect in the aircraft or its systems.

The pilot was appropriately licenced to operate the aircraft in day visual conditions and had completed 4.5 hours flight training towards qualifying for the night visual flight rules rating.

The weather conditions in the Goulburn area at the time together with fading daylight would have deprived the pilot of a visible horizon. Witnesses reported that at the time of the accident there was fog and drizzle in the vicinity of the hill on which the aircraft impacted. This would have increased the probability of spatial disorientation and a subsequent loss of aircraft control.

The aircraft was not certified for flight in instrument meteorological conditions.

According to the ATSB investigation, the circumstances of the accident were consistent with the pilot attempting to continue the flight into non-visual meteorological conditions. ■

Got the right fuel system fitting in your balloon?

ONE overcast Saturday morning in March this year, three suburbs in north Canberra were littered with debris from a burning Cameron V-77 balloon and several houses were damaged. Two of the three occupants in the balloon suffered serious burns.

Eleven years ago in Phoenix Arizona one passenger was fatally injured after jumping from an ascending Cameron O-1-5 balloon, also on fire.

The two accidents share similarities – unsuitable fuel cylinder fittings were installed in both cases.

In the Canberra accident, the balloon basket caught fire when it tipped over after touch down. The occupants escaped. The pilot released the ripline and allowed the balloon to ascend, deciding it was safer for the fuel cylinders to be in the air than on the ground where there were bystanders.

Witnesses reported to investigators there was an explosion and an object fell from the burning basket. The fire continued to burn and consumed the wicker basket and damaged the lower panels and skirt of the envelope.

The intensity, size and rapid onset of the fire suggested to investigators that a fast and uncontrolled leak of LPG had occurred. The pilot lights were on during touch down and a liquid offtake valve had fractured, which allowed the LPG to escape. The valve had been fitted so that it extended beyond the fuel cylinder guard ring.

Similarly, in the Phoenix accident, the fuel tank hoses and fittings did not meet the balloon manufacturer's specifications. Moments after lift off a fuel line connection failed and a fire erupted. The pilot told the passengers to jump. An examination of the remains of the balloon revealed the fuel system had been modified to a configuration that was not approved for the Cameron O-105 type.

Although the US report was inconclusive in its findings, it was almost identical in outcome to the Canberra accident, and highlighted to ATSB investigators the potential consequences of unsuitable fuel system fittings in balloons.

Story by: Rod Fearon and Sarah-Jane Crosby

Photographs by: Marion Alexander

Wreckage examination

ATSB investigators attended the scene of the Canberra accident. An examination of the wreckage established that two aluminium fuel cylinders were each connected to one of the two burners. One tank was connected to both the vapour feed line and the liquid feed line, and the other was connected to the vapour feed line only. Both pilot light valves were on, the cross-feed valve was off

and both the liquid and vapour offtake valves on both fuel cylinders were on. A male connector fitting had broken off, flush with the top of the threaded portion of the body of the corresponding fuel cylinder liquid offtake valve.

Examination of the broken fitting showed that it had been partially fractured when the fire developed. The fracture was sufficiently large to allow the uncontrolled escape of LPG into the balloon's basket. The fracture surfaces indicated that the fire was no longer burning near the fracture at the time the fitting broke away completely. The fitting had fractured in a downward direction, and there was no evidence of fatigue or pre-existing defects.

One aluminium fuel cylinder was found along the debris trail between the initial landing site and the final location of the remains of the balloon. The cylinder had failed because of a single ductile rupture of the upper shell section, characterised by a large bulged area, outwardly turned fracture lips and extensive blackening and sooting around the rupture.

Fuel cylinder fitting selection

The broken fitting consisted of a Rego 8101P5 service valve coupled to a 7141M check connector. With this configuration, the assembly extended outside the fuel cylinder guard ring.

The balloon manufacturer's maintenance manual stated, 'Only factory supplied parts and materials are permitted to be used for repair or maintenance actions.' The manufacturer advised that it previously supplied the Rego 8180 valve and subsequently supplied the BMV 344 handwheel-type liquid offtake valve in place of the Rego 8180 valve. The BMV valve was similar to the Rego 8180 valve. Balloon industry personnel suggested that while the Rego 8180 valve was the most widely used fitting, the Rego 8101P5/7141M combination was also relatively widely used in ballooning applications.

Despite the balloon manufacturer's documentation guidance regarding selection of fuel cylinder fittings, the general practice among balloonists was found to be for gas supply companies to replace, if required, fuel cylinder fittings during the mandatory 10-yearly cylinder inspection.

Gas suppliers generally have extensive experience and knowledge regarding fuel cylinder maintenance, however, they generally do not have much involvement in the aviation industry.

They are not provided with detailed guidance regarding the appropriate selection and configuration for fuel cylinder fittings for aviation applications. The investigation did not establish when the Rego 8101P5/7141M combination liquid offtake valve was installed.

Pilot light usage

The accident also highlighted the incorrect use of pilot lights as a contributing factor to the development of a fire. According to the balloon manufacturer's Flight Manual section 4.6 'Landing' the pilot light should be turned off before touchdown. Some balloon pilots indicated to the investigators that they sometimes left the pilot lights on for landing if they were certain that the balloon basket would not tip over, which allowed them to conduct a go-round if required. Once the pilot lights were turned off, and there was insufficient height to relight the pilot lights, a balloon pilot would normally be prevented from conducting a go-round before the balloon touched down. In the accident, the pilot lights were left on.

Passenger clothing

The report noted the types of clothing fibres worn by the passengers and the extent of body coverage. The occupants of the balloon generally sustained burns to exposed areas of skin. Had they been wearing natural fibre clothing on exposed body areas the extent of their burns would almost certainly have been reduced.

The pilot of the balloon was wearing a hat, a short-sleeved cotton shirt, trousers, gloves and shoes and sustained serious burns to forearms, face and neck. One passenger wore a woollen lumberjack-style long-sleeved shirt, jeans, gloves, boots, sunglasses and a hat, sustained minor burns to the face and wrists, and was the only occupant not admitted to hospital. The second passenger wore running shoes, three-quarter length pants, gloves and a long-sleeved top, which did not tuck into the pants waistband. The passenger sustained serious burns to shins and stomach.

Conclusion

The most likely source of the LPG leak was the fractured liquid offtake valve. It is also likely that the fracture occurred during the landing. The yellow flames reported by witnesses and the sooting of the ruptured cylinder suggested that the fire was fuel-rich, consistent with a high-volume gas or liquid fuel supply.

Each of the radios or the battery could have provided an ignition source, but it is most likely that the pilot lights ignited the leaking LPG. Had the pilot lights been turned off prior to the landing, in accordance with the flight manual and standard ballooning practice, it is unlikely the leaking gas would have ignited.

The condition of the ruptured fuel cylinder indicated that it had failed as a result of flame impingement and subsequent softening of the aluminium shell. The explosion of the cylinder was therefore a consequence of the fire rather than contributing to its development.

The length of the broken fitting provided significant leverage that would have required only a relatively small force to be applied before the fitting broke. There was also limited protection for the fitting because it extended significantly beyond the fuel cylinder guard ring. While the Rego 8101P5/7141M combination liquid offtake valve may have been appropriate for some applications, it was not appropriate for aviation installations.

Safety recommendations

The investigation revealed that fuel cylinder fittings similar to the fitting that failed are relatively common in the ballooning industry in Australia. This suggests that the ballooning industry as a whole is not sufficiently aware of the safety implications of fittings extending significantly beyond the fuel cylinder guard ring.

The selection of suitable fittings for fuel cylinders in balloons requires the expertise of both the gas supply industry and the aviation industry. Both industries have specific requirements related to fuel cylinder fitting selection and configuration.

As a result of the investigation the ATSB recommended that:

- The Civil Aviation Safety Authority, in conjunction with the appropriate specialist organisations, develop and promulgate requirements that specify which fuel cylinder fittings are suitable for use in balloons and suitable configurations for those fittings.
- The Civil Aviation Safety Authority ensure balloon owners and operators identify and remove gas tank fittings that are not suitable for balloon operations. ■

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

In the March–April 2001 issue, I sought feedback from readers on their experiences with flight number callsigns (FNCs) and their potential for callsign confusion. The response has been varied with callers either supporting or decrying their use. I note also that letters to the editor have been published on this issue. The individual's view on this issue is very much dependent on their background.

Most controllers and some pilots would prefer to use aircraft registrations. Other pilots, operators and management prefer FNCs. While there may be those that argue that similar aircraft registrations could be equally confused, the mathematics clearly reduces the probability of confusion and therefore the risk. The general consensus would seem to be that FNCs are here to stay: FNCs facilitate changes to aircraft scheduling. Controllers are reminded that whenever callsign confusion is a possibility they can use conventional formats on any (or all) of the aircraft involved or amend the callsign to include a suffix for the duration that the aircraft concerned are on the same ATS frequency (AIP GEN 3.4 –22, para 4.16.5).

In this issue, I have included the type of reports that the CAIR office seeks. These are, actual flying experiences where lessons can be learnt, and other occurrences that may not be serious enough to warrant a mandatory air safety incident report being submitted. Reports from controllers on an event that did not lead to an incident, but where a lesson could be learnt, would be appreciated.

Chris Sullivan
Manager CAIR

CAIR reports

Checklist saves aircraft

(CAIR 200102721)

I am the owner of a Cessna 182P registration [###]. *The following is an incident which occurred recently at* [location] *airport. You may be able to use it to alert other pilots of the possibility of a leaky component endangering an aeroplane.*

The aircraft was in good order and had only flown approximately 10 hours since a very thorough 100-hourly. I had bought the aircraft three months before the 100-hourly service and the aircraft was to be used for charter. The magnetos and carburettor required an overhaul, which was completed during the 100 hourly.

The aircraft had not been used for about four days when I intended to fly some practice landings at [location]. *The day was hot with a 10 knot breeze blowing from about 150 degrees M, which was at a right angle to the parked plane and roughly straight down runway 15. As is my habit, part of the shut down from the previous flight, I had turned the fuel selector to off. I conducted an unhurried exterior pre-flight inspection in detail and found nothing of concern.*

I then entered the aircraft, and being a hot day, I opened the passenger side door to allow the breeze to blow through and cool the interior. I saw a heavy rain scud approaching from the southeast but this would not affect my plans. I placed my maps etc. in the respective places for them, and closed and locked the passenger door.

I began the pre-start check in line with a checklist, which is straight from the Pilot's Operating Handbook for the aircraft. I selected "both" on the fuel selector. I then decided to read straight from the checklist but I could not locate it. I knew it had been on the passenger seat a moment before and I suspected that it might have fallen out without being noticed. I leaned over and opened the passenger door and looked to the ground to locate the list.

I then saw a large pool of fluid on the ground around the front of the aircraft. As I knew that the fluid had not been there a couple of minutes earlier I alighted to investigate. As I shut the door I saw a heavy stream of fuel falling from the cowl flap over the exhaust stub, and over the nosewheel onto the ground. I estimate that there would have been at least twenty litres on the ground already.

I immediately re-entered the aircraft and switched the fuel selector to off. I then investigated and found the fuel appeared to be coming from the carburettor. The fuel tender was nearby and the operator and I were about to place some absorbent material on the spill. At this time the very heavy, but short rain scud arrived and completely washed the area clean of fuel.

My pre-flight external inspection has now been altered to placing the fuel selector in the 'both' position before the inspection in order to prevent a repeat event. The breeze, blowing at right angles to the aircraft, carried the smell of the fuel spill away from the aircraft. Had I not lost that checklist and hit the starter, I believe that it would have resulted in the destruction of an otherwise perfectly good aeroplane.

The carburettor problem was rectified by its removal and return to the overhaul shop. The checklist averted a disaster (for me) in a very unusual and roundabout way.

Incorrect MBZ frequency

(CAIR 200103206)

On returning to [regional aerodrome] *I gave my inbound call just after hearing an inbound from another aircraft who was due in 13 minutes after me. I wrongly assumed he was on the MBZ frequency and subsequently did not expect a beep back after my broadcast. Being on my own, I decided to conduct a practice NDB/DME approach in VMC and went straight into the brief. In subsequent calls I didn't expect a reply from the other aircraft as we reported circuit times of more than five minutes apart. When becoming visual before the MDA, I discovered I had been transmitting on an incorrect, other location MBZ frequency. I sighted another*

aircraft backtracking on runway 08 and immediately conducted a missed approach.

Unsafe gear on Navajo

(CAIR 200100739)

After selecting 'Gear Down', the pilot only got two greens with nose gear indicating 'Not Locked'. Nose gear had actually extended, as observed in the nacelle-mounted mirror. After recycling the gear two more times the same indications were apparent. After checking the indicator globes were functioning normally, the pilot made contact with company base and made two passes over the aerodrome in order for ground personnel to observe the position of the nose landing gear. After being informed that the nose gear appeared to be in the locked position the pilot decided to attempt a landing. A landing was carried out on runway 08 with the nose landing gear remaining extended and a third green light illuminating on touchdown. The cause of the problem was a faulty micro-switch in the nose-wheel well, which has subsequently been replaced. There were no passengers on board.

CAIR note: This report describes a good outcome from a situation that could have led to an accident. The pilot successfully used the limited resources available to maximise awareness of the problem enabling an informed decision to be made.

Unsafe battery in aircraft's hold

(CAIR 200100510)

On arrival at [capital city airport] *an electric motorised wheelchair was unloaded from the number two hold. The chair was wheeled to the front stairs awaiting the passenger when it was noticed that the battery had not been correctly packed for air transportation.*

The relevant section of the Airport Handling (Volume 15) is to be reviewed and all concerned will be given extra training to ensure that this type of occurrence does not occur again.

Outback runway incursion

(CAIR 200100705)

After consultation with the pilot of a departing aircraft my work partner and myself were doing a run down the airstrip at [regional location] *to check for kangaroos on the strip. When we reached the end of the strip and were returning to the terminal area we noticed lights coming towards us. We had unfortunately forgotton to put our emergency beacons on. However, we were on high beams and had two driving lights on. We pulled off the strip, switched our beacons on and our main lights off, so as not to dazzle the pilot, who continued the take-off roll without further incident.*

Excessive oil consumption

(CAIR 200101205)

We were flying from [ABC to BCD], *in a Cessna 172, maintaining an altitude of 6500 feet AMSL. As we passed* [location], *my passenger and I became concerned that the oil pressure was dropping and was at the low end of the green arc. The oil temperature also rose very slightly without being quite as serious. The gauges are low on the left of the instrument panel and are quite small. The fuel gauges are just above them and they were bouncing around all over the place, no doubt in response to fuel movement. I have always treated the fuel gauges with some suspicion, relying instead on visual check of fuel before take off. The same thought of instrument variability crossed my mind but I have been flying for nearly ten years and never seen the oil pressure gauge move at all, certainly not out of the green arc.*

At first the change in the gauges was a little disconcerting but after half an hour or so the needle on the gauge dropped below the green arc and the situation became increasingly alarming. The decision was made to call the flight short and land at the first available opportunity. My passenger, also my boss and a consummate gauge watcher, grabbed the ERSA and found the necessary information for me as I made the change to our heading and kept an eye out for traffic in the CTAF. We diverted to [CDE] *without incident, landing safety around ten minutes after making the decision to divert for a precautionary landing.*

Upon landing, we parked the aircraft on the apron and proceeded to ring the telephone numbers in the ERSA to gain access to the fuel shed. The aircraft had one litre of oil in the baggage compartment but unfortunately no funnel. There was no way we could pour the oil in without a funnel, even though we tried. I checked the oil as soon as we had parked the aircraft. I thought at first the oil may take a few minutes to settle to get an accurate reading and the area on which we parked was not quite level so we pushed it onto level ground. When I checked again after a few minutes, there was no indication on the dipstick at all. I cannot begin to convey the horror I felt when I looked at the dipstick and considered the consequences of trying to push for home. We had stopped just short of the gorge and the highest, roughest terrain of the whole flight.

After some time, a member of the aero club, also a C172 pilot, was able to help to top up the oil using Mobil Aeronautical grade SAE 50. We kept adding oil until the dipstick indicated six US quarts was present. We had used four litres of oil. I had checked the oil at [BCD], *where it was just above the six US quart line and again during the pre-flight checks at* [ABC]. *The oil at* [ABC] *indicated just below six US quarts, so it would appear that it used a litre or less during the first two and a half hours and a further three and a half litres on the final leg. It seems that the engine burned a litre an hour. There were some sooty deposits under the engine cowling and the cabin had some fumes from the engine, which smelt very rich and slightly oily.*

After checking we had enough time to complete the flight, I taxied to the downwind end of the field and did a very thorough pre-take off check. We circled the field until reaching satisfactory height then tracked for [BCD] *after leaving the CTAF. I kept an eye out for forced landing areas as we crossed the Great Divide. The aircraft burned another half a litre of oil in the last thirty minutes.*

The aircraft has been checked by mechanics at [GAAP aerodrome] *without finding any problems. I have thought back on the flight and am satisfied that I have operated the engine according to the book without being heavy handed or abrupt in my use of the controls. The dipstick was secured properly and no sign of oil around the area was found by the mechanics. I am at a loss to explain this however the engine has been recently reconditioned and may have been still bleeding in and therefore required more oil than usual. I have ensured the aero club is fully aware of this and my intention to report these details to you. I am not sure what can be done about it except to keep an eye on the engine gauges and watched for any change and add oil when necessary. I will certainly watch those gauges with a keen eye from now on. I hope this can be of some help to you.*

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