ATSB Australian Transport Safety Bureau

Air Safety Investigations

A most dramatic runway incursion

Reader and keen pilot Roger Brown reminded us of the following event after our last runway incursion story in *Flight Safety* (May–June).

ON THE DARK and wet night of 29 January 1971 one of the closest calls to a total disaster for Australian skies took place at Sydney airport. A Boeing 727, VH-TJA, struck the tail fin of a DC8-63, Empress 301, during takeoff on runway 16.

The following is an extract from the radio transcript in the Department of Civil Aviation (Air Safety Investigation Branch) report number 71-1:

2133 (727) *TANGO JULIET ALPHA ready*

2133:54 (ATC) *TANGO JULIET ALPHA, DC8 on short final, line up behind that aircraft*

2134:53: (ATC) *EMPRESS THREE ZERO ONE take taxiway right call on one two one decimal seven*

2134:57 (DC8) *Roger*

2135:38 (ATC) *TANGO JULIET ALPHA radar departure turn right heading one seven zero clear for immediate takeoff*

2136:07 (ATC) *EMPRESS THREE ZERO ONE cross runway zero seven*

2136:11 (E301) *Roger*

2136:16 (Unidentified) *How far ahead is he?*

2136:30 (ATC) *THREE ZERO ONE hold position*

2136:45 (ATC) *EMPRESS THREE ZERO ONE continue straight ahead along that taxiway cross runway zero seven*

2136:50 (E301) *Roger, you got a guy on final right now?*

2136:57 (ATC) *EMPRESS THREE ZERO ONE confirm you are on the taxiway*

2136:57 (DC8) *Negative sir, we're on the runway, we were cleared to back track the runway*

2136:57 (ATC) *TANGO JULIET ALPHA reading?*

2136:59 (ATC) *EMPRESS THREE ZERO ONE take next taxiway left*

2136:59 (E301) *Roger*

2137:02 (ATC) *Station calling Sydney tower – ah!*

Investigators inspect damage to VH-TJA in forward wing root on starboard side.

2137:15 (ATC) *TANGO JULIET ALPHA go ar…..*

2137:28 (727) *TANGO JULIET ALPHA we're turning left – tell him we've lost – we've lost all our hydraulics*

2137:28 (ATC) *EMPRESS THREE ZERO ONE take taxiway right cross runway zero seven*

2137:38 (727) *TANGO JULIET ALPHA we did strike the DC8 and we are turning left, we lost all hydraulics and we'll be turning round onto a downwind leg*

2138:30 (ATC) *TANGO JULIET ALPHA will approach and landing be normal?*

2138:40 (727) *TANGO JULIET ALPHA negative, lost all hydraulics I've lost system A at the moment*

2139:52 (727) *TANGO JULIET ALPHA Ah! I will have to do a circuit or two to sort things out a bit I want to keep below the cloud*

2140:50 (ATC) *TANGO JULIET ALPHA this is Sydney Approach climb to three thousand and report DME position*

(727) *TANGO JULIET ALPHA negative….not in very good shape I prefer to keep visual below the cloud*

(ATC) *TANGO JULIET ALPHA approved, where would you like to hold?*

(727) *Just one more circuit ought to do if we can, or, do a big long, er, long one*

2141:27 (727) *TANGO JULIET ALPHA on second thoughts will have to dump, we will head out to sea on a heading…of one two zero degrees, how's that to you? For about four and a half to…*

2142:47 (ATC) *report when ready to return.*

Forty minutes later VH-TJA landed safely although extensively damaged.

According to the DCA report the taxi clearance issued to the DC8 was misread by the crew as 'backtrack if you like – change to 121.7'. The aircraft was then turned through 180 degrees to backtrack on the runway instead of entering a taxiway. The error was not detected by the controller who then cleared the 727 for takeoff.

Editor – Roger was a passenger in the 727. On 11 September 1990 this scenario nearly happened again on runway 34. A 747 on takeoff almost collided with another 747 which was being towed across its path (BASI report B/902/3307).

Safety briefs

Piper Chieftan suffered double engine failure

Occurrence number 200002157 (Preliminary report)

On 31 May 2000 Piper Chieftan VH-MZK was being flown from Adelaide to Whyalla on a regular public transport service. It departed at 1823 hours CST. At 1856 the pilot reported that the aircraft was 35 NM SSE of Whyalla at top of descent from 6,000 feet and estimating Whyalla at 1908.

At 1901:11 the pilot gave a MAYDAY report indicating that the aircraft had experienced two engine failures and he was going to have to ditch, but was trying to get to Whyalla. He reported his position was about 15 NM off the Whyalla coast. Examination of recorded data indicated radar contact with the aircraft ceased at 1900:09 at an altitude of 4,260 feet.

The wreckage of the aircraft was not located until 5 June. The ATSB organised a salvage operation for the recovery of the wreckage.

ATSB investigators supervising the disassembly of the aircraft engines at an aerospace engineering facility found significant mechanical damage to both engines. Damage to the left engine included the failure of a connecting rod, together with a broken crankshaft. In the right engine, a piston had suffered significant damage.

The ATSB will undertake a metallurgical investigation of both engines to determine the sequence of events that led to these failures.

Other aspects relating to the flight are being investigated.

Separation loss after wrong aircraft followed

Occurrence Brief 199903602

An incident at Brisbane airport on 28 July last year has highlighted some of the problems that aircraft crew can face when asked to identify another airborne aircraft.

A Metroliner and a Jetstream came to within 1.2 NM when both aircraft were at the same height and on approach to runway 19. The Metroliner crew had been instructed to follow the Jetstream and make a visual approach, but the crew followed a BAe 146 on short final instead.

The ATSB report found that type identification of either aircraft would have been virtually impossible for the Metroliner crew as both of the other aircraft were some distance away.

The difference between the brightness of the aircraft and the brightness of the background would have been reduced, and would continue to reduce with increasing range. This would make the contrast between the aircraft and the ground more difficult and the aircraft harder to detect.

Target identification would have been hampered by contour interaction, which occurs when the outline of a target aircraft blends with the contours in the background. It is most noticeable at low altitudes.

When the crew of the Metroliner were instructed by Air Traffic Control to report sighting the Jetstream at 11 o'clock, the BAe146 was the only aircraft discernible to them. It was at the extreme limit of visual acuity and as its side profile was presented, could easily have been mistaken for a Jetstream.

The Jetstream, with its head-on profile and distance away of 9.8 NM would have been almost impossible to see.

Pawnee hit car and kept going

Occurrence Brief 199901299

A Piper Pawnee ran into a car after takeoff, injuring a passenger, and continued with its crop spraying operations on 28 March last year.

The pilot had been operating from an 800-metre strip 28kms from Pittsworth, Queensland. The strip ran perpendicular to a north-south sealed public road. Prior

to each takeoff the pilot checked for traffic on the road. From the cockpit he had a view of the road for about one kilometre in each direction. He had waited a number of times for traffic to pass during the day.

When the accident happened the pilot was fatigued, and because of the low sun angle, had not noticed the vehicle travelling south. The left main wheel collided with the front left corner of the car's cabin and ran across its roof before breaking off and coming to rest in an adjacent paddock. The pilot considered that the aircraft was operating normally so continued with the spraying operation and returned to home base for landing.

There had been no signs erected on the road to warn motorists that low flying aircraft may be operating from the strip and crossing the road at low level.

The pilot provided no explanation to the ATSB investigators about why he did not report the accident.

Inexperience ends in TRAGEDY

One of the most dangerous situations a pilot operating under Visual Flight Rules (VFR) could be faced with is the complete loss of visual reference. In the last five years, 28 people have been fatally injured in such circumstances (see table 1).

On 14 October last year, a VFR pilot with 220 hours flying experience set off from Lightning Ridge for Caloundra in a Cessna 182 in VFR weather. Although the weather forecasts looked reasonable when he took off, by the time he was overhead Goondiwindi the actual weather conditions were not looking good.

At about 1100 the radar controller noticed a secondary surveillance radar return (code 1200), operating in close proximity to the boundary of controlled airspace at about 5,600 feet above mean sea level.

By the time the controller was able to talk to the pilot at 1107:57, the aircraft was inside controlled airspace bearing 310 degrees M from Amberley at 30 NM. The pilot was immediately instructed to make a left orbit to maintain separation from an inbound F111 with an in-flight emergency.

During the orbit, the pilot advised the controller that he was caught in cloud and that he was in trouble. The controller tried to clarify what was happening, and spoke to the pilot a number of times.

By the time the controller had established that the pilot wanted to track to Caloundra and while rated only for VFR flight was now non-visual, the pilot had commenced a second left orbit. Half way through the orbit, passing a heading of approximately 240 degrees, the controller instructed the pilot to turn right and take up a northerly heading for Caloundra.

While in the right turn, the controller asked the pilot if he wanted to descend. The pilot replied yes and he was cleared to leave control area on descent.

The aircraft's altitude during the turn was erratic. It descended to 4,400 feet in less than a minute then climbed back to 4,800 feet. The pilot continued the right turn onto a heading of about 130 degrees then began a left turn to intercept the track from Toowoomba to Caloundra.

While the pilot was doing this, the controller told him that he could descend safely to 3,000 feet in the aircraft's current location. Once established on track to Caloundra, the aircraft maintained a steady heading with a rate of descent of about 300 feet per minute.

The controller then instructed the pilot to turn right heading 130 degrees, a turn of about 90 degrees, to avoid an area of higher terrain where the radars lowest safe altitude was 3,800 feet. The aircraft was passing through 3,700 feet when the turn began.

The aircraft continued to turn through the assigned heading and its ground speed and rate of descent increased. Its radar return disappeared from the radar display at about 1116 as it was passing through 3,200 feet on a heading of approximately 210 degrees.

The pilot's last broadcast was at about 1116 in response to a question from the controller.

The wreckage of the aircraft was located about 6.5km north of Esk on flat pastoral land. A nearby resident had called the emergency services at 1117:30 after he had observed a plume of fuel and debris.

The aircraft was in a left spiral dive when it impacted the ground. The weather was showery and cloud covered the tops of the hills. The aircraft was destroyed.

Some safety lessons

Air Traffic Services (ATS) emergency procedures are outlined in chapter 17 of the Manual of Air Traffic Services (MATS), which is a joint military/civil document. It covers the declaration of emergency phases and outlines procedures for handling in-flight emergencies, including situations involving flight confined to Visual Meteorological Conditions (VMC) but operating in Instrument Meteorological Conditions (IMC).

According to MATS, a pilot faced with this situation would have difficulty maintaining headings and altitude and perceiving aircraft attitude. ATS should try to reassure the pilot and limit communications to avoid diverting the pilot's attention from flying the aircraft.

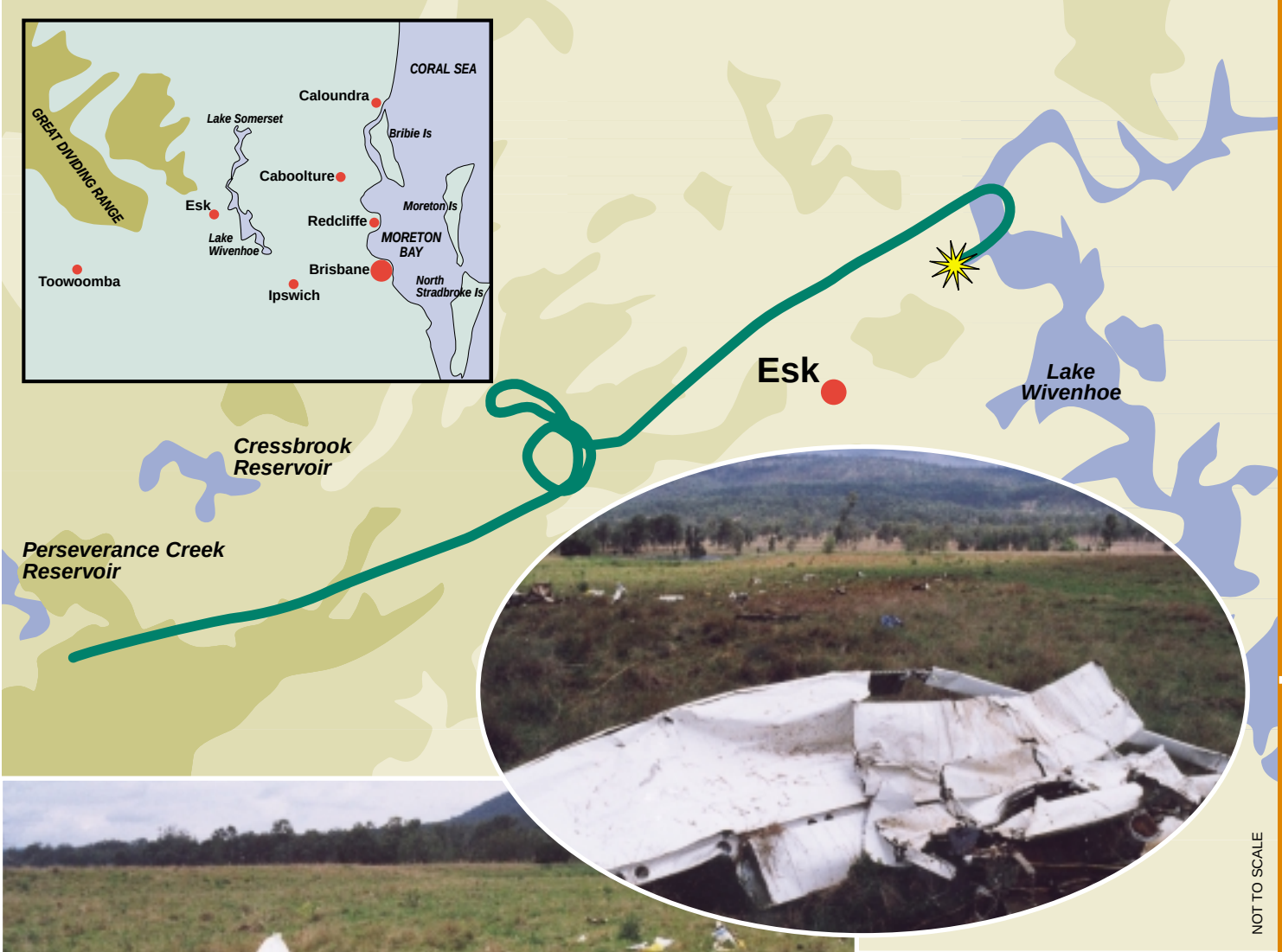
Airservices Australia's In-flight Emergency Response (IFER) Training Manual gives more detailed guidance for handling a VFR in IMC situation. This manual advises Air Traffic Controllers to help an inexperienced pilot in distress with some reminders on aircraft handling such as concentrating on aircraft attitude (steady heading, wings level, constant speed); trusting what the instruments say; and when manoeuvring make gentle movements (climb, turns, descents) and to turn first then establish straight and level before climb or descent.

Controllers could also help a pilot by giving navigational information that would help to re-establish the aircraft in VMC. In communicating with the pilot, controllers should keep instructions simple and distractions to a minimum, while also instilling confidence and providing reassurance. It is also important to pass only one item at a time.

According to the IFER manual, communication style is important. It states that a VFR

Table 1.
VFR flight into IMC conditions

Year	*Occurrences*	*Accidents*	*Fatalities*
1995	38	7	13
1996	34	1	2
1997	33	1	3
1998	39	4	3
1999	36	4	7



pilot in an IMC situation is under considerable stress and there is a need for ATS staff to convey empathy, patience and confidence. This would require staff to adopt a different technique to the customary delivery of information. It was vital that questions were not put in an interrogative manner.

The ATSB found that there was no record that the Australian Defence Force (ADF) had received copies of the IFER training manual from Airservices, and it, or an ADF equivalent, was not held at any ADF ATS unit. However, ADF units did hold copies of the Airservices IFER checklist, a document separate from the IFER training manual.

According to the ATSB's investigation the controller communicated with the pilot in an authoritative manner and questions were posed in an interrogative style. ATS staff referred to the IFER checklist, but were unaware of the more detailed guidance contained in the training manual.

Outcomes

As a result of concerns regarding military air traffic control officers' awareness of in-flight emergency response practices and procedures for civil aircraft, the Bureau issued interim recommendation IR 19990190 to the Australian Defence Force on 16 December 1999. The ATSB recommended that the ADF review IFER training for air traffic services staff responsible for the provision of services to civil aircraft.

As a result, the ADF undertook a comprehensive review of IFER training, procedures and practices. The review concluded that Defence IFER management and training was capable of improvements and the Chief of Air Force directed that 11 recommendations arising from the review be implemented by 30 June 2000. The recommendations included enhancements to abinitio and post-graduate IFER training, establishment of dedicated training officer positions within ATC flights and development of a formal Supervisors course, incorporating IFER and team/crew resource management instruction.

Despite the ATS issues that came to light after this tragic accident, the pilot flew on into IMC, a situation that was beyond his skills and experience. It is likely that he became spatially disoriented and lost control of the aircraft soon after descending through 3,200 feet.

Reason in the method: why we need a reporting culture

BOB KELLS AND his investigation team had arrived at the accident site by helicopter. It had been at least a day since the Twin Otter had struck trees nine kilometres south west of Simbai in the Bismark Ranges, Papua New Guinea, when the crew had tried to fly it out of a steep valley.

It was an incredible sight. The fuselage was intact. The wings had been taken off by the trees. Ahead of it was a precipice – a steep drop from which there may have been no survivors had the aircraft gone over.

It was a unique situation. Bob had been able to interview the crew in hospital and they talked openly about what had happened. He had been on standby within hours of the crash as the civilian leader of a joint civil/military team of investigators. The army operated the aircraft but as it was a civil registered aircraft, the accident investigation fell under the jurisdiction of the PNG authorities. They had requested that the (then) Bureau of Air Safety Investigation conduct the investigation.

That was in November 1997. The final investigation report, number 9703719, was released to the public in June 1999. In that period, action had been taken on a series of recommendations that had highlighted significant deficiencies in the way the military had conducted tropical mountainous flying training in Papua New Guinea.

What types of lessons are learnt from investigations like this? What did this one teach the aviation industry?

According to Dr Rob Lee, Director, Human Factors, Systems Safety and Communications, if underlying organisational deficiencies are left unchanged, the same kinds of occurrences would continue to happen.

In the report, the crew of the Twin Otter was found to have been operating within an organisational environment that had a 'low level of experience and corporate knowledge regarding the operations of fixed-wing aircraft…in tropical mountainous areas.

'Against this background, deficiencies were identified in the planning and preparation for the exercise, including risk assessment and the selection and briefing of the training pilot,' so the report states.

Aviation safety across the world relies on the thoroughness of accident and incident investigations and the timely reporting of the findings. Dr Assad Kotaite, President of the International Civil Aviation Organization (ICAO) said, 'Without this essential information the efforts of industry, aviation administrations and the ICAO cannot be effective in addressing hazards in the air transport system.'

Since the 1950's Australia has had one of the world's most comprehensive aviation occurrence reporting systems. By law, anything that affects the safety of flight must be reported.

Under Annex 13 of the ICAO Standards and Recommended Practices, *Aircraft Accident and Incident Investigation*, a mandatory reporting system must be in place and supported by a non-punitive voluntary system.

In 1988, Australia's mandatory open reporting system was complemented by the Confidential Aviation Incident Reporting system (CAIR), where the reporter's identity remains confidential. Through both systems, the ATSB receives thousands of reports annually (see table 1).

Most of these reports are of a relatively minor nature. "In the mandatory reporting system we get around about 5,000 incidents and about 3 – 400 incidents through the confidential system," Dr Lee said.

"One of the features of the Australian system, unlike say in the US where you only have to report certain categories of more serious incidents, is that the information from relatively minor occurrences can be analysed to see if there is an underlying reason that might be causing the occurrences," Dr Lee said.

In 1996 the Bureau reviewed the way it stored and collected air safety occurrence information. The Systemic Incident Analysis Model (SIAM) was developed and provided a better way of using occurrence data. It is based on the model developed by Professor James Reason of the University of Manchester, who developed a conceptual and theoretical approach to the safety of large, complex sociotechnical systems such as aviation.

Major investigations such as the PA 31 accident at Young (1993) the Boeing 747 accident at Sydney airport (1994) and the Class G airspace demonstration (1999) were undertaken and reported using the principles of the Reason model.

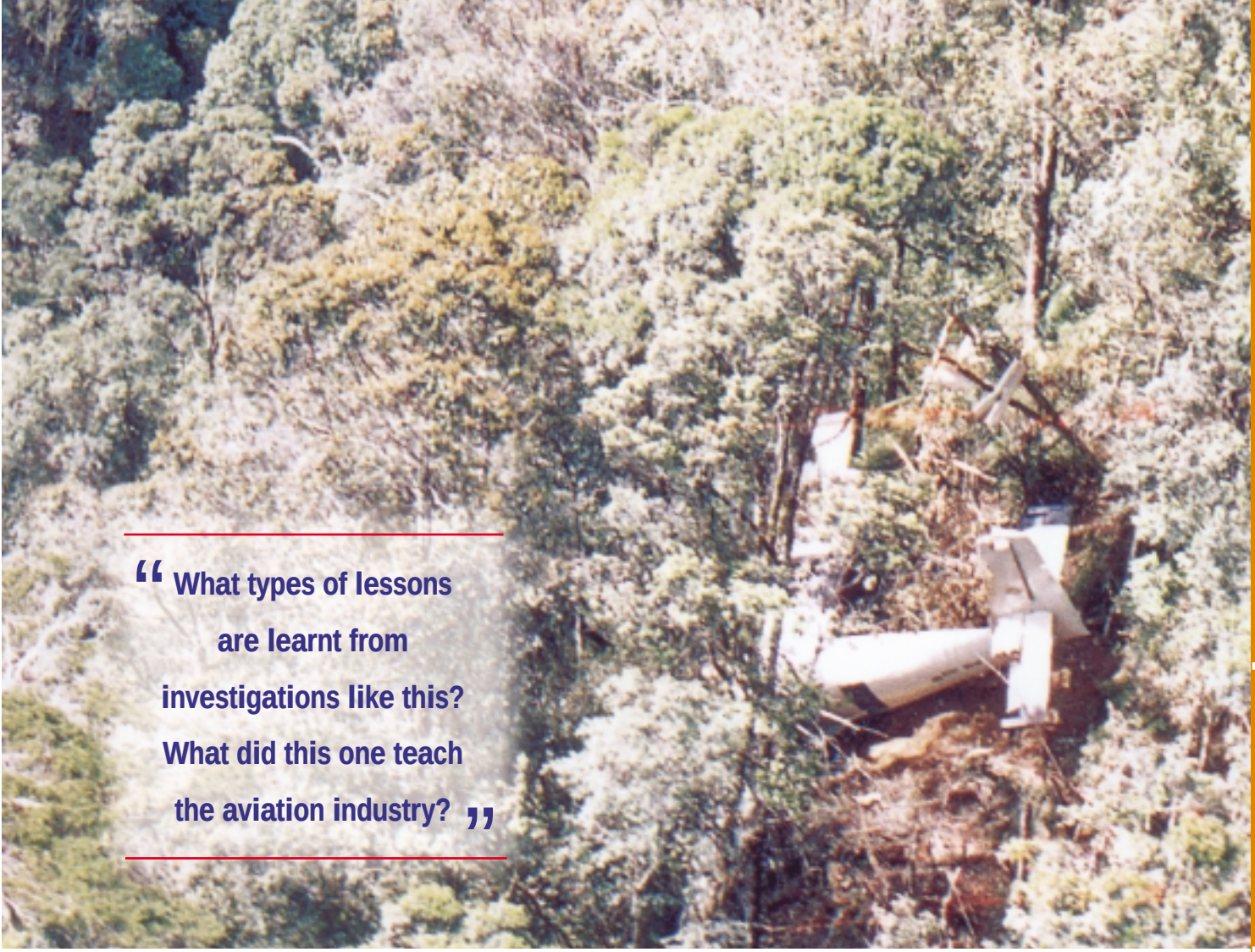
These investigations all had substantial impacts on rectifying major latent organisational deficiencies in the aviation system across government, corporate, regulatory and organisational areas.

According to Dr Lee, if these investigations had not been undertaken in accordance with the basic principles of the Reason model, the significant systemic safety outcomes would not have been achieved.

What safety lessons would be lost if there was no reporting culture?

Table 1.
Occurrences and accidents for 1998–1999

	Category 2		Category 3		Category 4		Category 5		
Year	*Incident*	*Accid.*	*Incident*	*Accid.*	*Incident*	*Accid.*	*Incident*	*Accid.*	*CAIR*
1998	1	1	4	6	1,472	211	3,522	9	363
1999	–	1	3	8	1,323	172	4,070	16	299



> **"What types of lessons are learnt from investigations like this? What did this one teach the aviation industry?"**

A great many issues have been identified by the analysis of reports received through Australia's incident reporting systems. Numerous lessons have been learnt and actions taken as the following CAIR report from mid-1999 shows.

On taxi, we noted traffic of a C310 approaching the circuit and a C182 departing. Upon runway entry and TCAS switching to T/A R/A, we had indication of one aircraft only, which we identified as the C310. We then asked the C182 if it was transponder equipped and, if so, to switch it on. The reply was that they were equipped and that they would switch it on. It appeared to me that they hadn't forgotten to switch it on, but rather that they were unaware of the requirement to have it switched on. We subsequently got a return and used it to assist our separation procedures.

My view is that far too many aircraft are not using their transponders correctly. These are predominantly low hour or OCTA only pilots. I believe that having the relevant transponder operating procedures within the 'Radar Services and Procedures' section (both CASA and JEPPS) is misleading and results in this information being missed by pilots who never operate in a radar environment. I feel this information should be in the OCTA procedures section as well.

Response from Airservices

The use of transponders is clearly defined and adequately covered in AIP ENR 1.6 - Radar Services and Procedures - under Section 8. However, AIP Book A/L 26, effective 2 Dec 99, has a new section in ENR 1.1 which was submitted by CASA. The new section advice is as follows:

68.1 Pilots of aircraft fitted with a serviceable Mode 3A transponder must activate the transponder at all times during flight in non-controlled airspace, and if the transponder is Mode 3C capable, that mode must also be operated continuously.

68.2 For further information on the operation of transponders, including normal and emergency codes, see ENR 1.6 Section 8.

"Reporting systems serve as a vital early warning device so it is important that people feel able to lodge a report on anything that they think is affecting safety (see table 2). New methods of analysing the information, such as the Systemic Incident Analysis Model (see *Flight Safety* March-April) demonstrate the operational value of a reporting culture. We have to know about problems before lives are lost," Dr Lee said.

A sound reporting culture is one of the best defences against that happening.

Table 2. Accident and incident reporting requirements

		Contact details
Accident	Immediately notifiable	1800 011 034
Serious incident	Immediately notifiable	1800 011 034
Incident	Within 48 hours	1800 011 034 or Fax 02 6274 6434
CAIR	As soon as convenient	1800 020 505 or CAIR form

Incident and CAIR report forms are available from www.atsb.gov.au

Confidential Aviation Incident Reporting

CAIR comment

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

Chris Sullivan
Manager CAIR

CAIR reports

Concern over night movements at Essendon

Essendon Tower is closed from 2200 to 0600 hours local time on weekdays, from 2200 on Friday to 0700 on Saturday and from 2200 on Saturday until 0800 on Sunday. During this time, movements into and out of Essendon are under the control of two Melbourne TMA controllers.

Essendon Aerodrome is situated in the Melbourne Control Zone and is less than 5 NM south east of Melbourne Aerodrome. It was envisaged that there would be very few movements overnight at Essendon (mainly air ambulance and police helicopter movements), however this is currently not the case.

For example, during the period of tower closure on the night of 14 February 2000, there were 27 aircraft movements at Essendon. These movements included a mix of aircraft and types of operation, ranging from charter freight, IFR training, medical fixed-wing, and helicopter movements, VFR scenic flights and VFR training.

When the Essendon Tower is closed, traffic must be handled by the two TMA controllers who are also controlling Melbourne Traffic (normally a steady inbound sequence between 2200 and midnight). One controller operates radar (four positions: Approach, Departures North, Departures South and Melbourne Radar), the other controller performs the Flow and Planner functions and operates frequency 118.45 MHz (to control the departures out of Essendon).

Safety concerns

There are safety concerns in three areas:

1. *The safety aspect of allowing movements into and out of a capital city secondary aerodrome located within a primary control zone and situated so close to Melbourne airport without the tower being staffed. The chance of an aircraft departing without departure instructions or using the wrong runway (which has happened previously) could have serious implications particularly with the amount of movements into and out of Melbourne Airport and the fact that Standard Terminal Arrival Routes into Melbourne for runway 34, from two directions, actually overfly Essendon Aerodrome as part of the arrival procedures.*
2. *The increased traffic complexity and workload imposed upon the TMA controllers. Local Operating Instruction MC 8028F (page four) permits only one movement at a time. For example, once an aircraft has departure instructions, an arriving aircraft cannot commence final or be assigned a visual approach and vice versa. This means at times that holding and delaying action is often required. Also, due to noise abatement requirements, the preferred runways at Essendon are often contrary to the preferred runways in use at Melbourne. (The noise abatement procedures are detailed in DAP East.)*
3. *The added complexities for pilots operating into and out of Essendon. Not all pilots are familiar with the special procedures as depicted in ERSA, or are aware of their implications (as outlined in point two above), which leads to frustration and often delays traffic either awaiting departure or holding outside controlled airspace awaiting clearance inbound.*

Response from Airservices Australia:
Procedures have existed for some time to process traffic into and out of Essendon outside tower hours of operation efficiently. Airservices is aware of previous instances of higher than normal traffic movements at Essendon Airport after tower hours. On becoming aware of higher than normal traffic numbers, Airservices consulted with industry and came to the conclusion that these occasions related primarily to a 'catch-up' effect following resolution of the fuel crisis and effect of extended operations during daylight saving.

Due to the possibility of this situation continuing, an adjustment to the tower roster was introduced in February 2000 extending coverage until 2300 local Monday to Friday. It should be remembered that the facility has always existed for extension of Essendon Tower hours should Melbourne Terminal Area (or any other unit) become aware of the need.

The traffic situation was monitored and movement statistics collected to provide a basis for further analysis of movement trends. This analysis indicated a marked reduction in movements to numbers similar to the low levels that previously existed. As a result of that analysis the extended tower hours were ceased on 7 April 2000, but as stated previously the facility to extend on an adhoc basis remains.

Airservices will continue to monitor traffic levels at Essendon and respond accordingly.

Uncommanded liferaft inflation

The helicopter was parked in a hangar beside other helicopters. On the day in question the liferaft which was located in the pilot's doorway between the seat and the door inflated. This blew the door off its hinges onto the helicopter parked alongside, distorting the doorframe, ripping out the door lock and forcing the cyclic

control full deflection left. Had this happened in flight the result would have been catastrophic.

To prevent further occurrences the liferaft should be removed from the cockpit and placed under the centre passenger seat as in other operators' helicopters.

Response from the operator: Without wishing to appear to be minimising the seriousness of this incident, there are a couple of elements of the report that require clarifying.

The cockpit door was not detached from its hinges by this incident. However, the inflating raft pressed onto the perspex window causing a small perspex window panel to become detached. The configuration of the liferafts in this helicopter type, currently and at the time of the incident, is one 12-man liferaft in the passenger cabin and another 12-man raft in the cockpit.

The cause of the liferaft's inadvertent inflation has been identified by the manufacturer as the failure of an incorrect or superseded part which was fitted to the operating head of the raft. A program to check and correct any similar irregularities in liferaft operating heads which are fitted to our aircraft fleet is nearing completion. We believe that with the manufacturer's correct and latest parts fitted to the operating heads of our liferafts there will be no possibility of a re-occurrence. However, the hazards associated with the unlikely event of a re-occurrence of this incident and the disadvantages in an emergency associated with removing the subject liferaft from the cockpit is currently being assessed by our safety department.

Oxygen generator transport pin

During routine line maintenance of the aircraft passenger service system, the oxygen generator housing was lowered to gain access to a component. It was noted that the transport pin for the oxygen generator was still installed despite the aircraft being in service for some weeks following major maintenance.

All of the remaining oxygen generators fitted to the aircraft were inspected with nil further faults recorded.

CAIR note: In discussion, the reporter stated that the only time that oxygen generators are inspected is on a major check basis such as a 'C' check or any other occasion requiring removal of the passenger service unit, which houses the generator. Hence, if there had not been any requirement to remove the passenger service unit outside of a 'C' check, the aircraft could have flown for years without the problem being discovered. It was sheer luck that the passenger service unit on seats 55J and 55K failed, leading to the discovery. The passenger service units have a very low failure rate on the particular aircraft type.

Forgot the wheels

Using the MBZ frequency, the pilot of a Saab 340 asked the pilot of a Cessna 402A if his landing gear was down. The Cessna pilot reported that the gear was not down and that he was going around. At the time, traffic was a Saab 340 and two PA-31-350s waiting to take off, and a Dash 8 at 10 NM inbound for landing.

Dangerous refuelling technique

The aircraft landed and parked in a position near to about 20 students who were waiting for their parachute jumps. The pilot then walked to a point where drums of Avgas were lying on their sides and rolled a drum to the aircraft. He then stood the drum on its base, opened it, inserted a pump and began refuelling the aircraft. He did not earth the aircraft. Another employee of the operator was standing within two metres of the refuelling and was smoking a cigarette. This employee also had a mobile telephone, which rang. He answered the phone without moving away from the aircraft.

CAIR note: In discussion, the reporter stated that the pilot reacted very aggressively to criticism of his refuelling technique. The pilot stated that he had been operating in this manner for many years and had never had a problem with refuelling. The reporter added that, in response to a comment about the risk of refuelling and smoking, the pilot expressed the opinion that the cigarette could be thrown into the drum and the liquid would extinguish it. The reporter told him that it was the fumes mixed with air that was the danger, not the liquid fuel. The reporter concluded that the pilot was not aware of this.

Infringement of approach path

The aircraft turned onto final on a parallel runway and tracked on the extended runway centreline. The pilot then saw a aircraft in the 1030 position, which he estimated to be not more than 20 metres away. It had overshot the turn onto final and had infringed his aircraft approach path. The other aircraft then aligned itself with the correct runway, and from that point all was normal.

The pilot later expressed the opinion that such instances could be avoided by Air Traffic Control providing traffic information on aircraft in different circuit patterns e.g. 'Additional traffic is a T-Bird on a right base for the parallel runway'.

Inappropriate separation procedure

CATIS (computerised aerodrome terminal information service) quoted cloud as "few 600, scattered 1000". The Dash 8 departed first and a SAAB 340 was given take off clearance shortly after. Weather conditions were stable and it was obvious this situation would occur. A radar separation standard was not established and visual separation was not maintained until a radar standard existed.

CAIR note: The aerodrome controller (ADC) in this scenario would, in the first instance, have obtained a departure instruction for each of the aircraft from the radar departures controller. The initial responsibility for separation of these aircraft then rested with the ADC. In normal circumstances, the ADC may apply visual separation until such time as a radar or procedural separation standard was established. In marginal weather conditions, the application of visual separation procedures should have been avoided.

While the ADC was primarily responsible for the active failure, the submission of a CAIR by the controller provided a means of capturing this useful safety data.

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

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