

July/August 1999, Issue 5

CAA NEWS

Informing for Safer Aviation



**AEROBATICS
EXEMPTION ISSUED**

**NEW AUDIT TOOL
UNVEILED**

**EVERY OCCURRENCE
COUNTS**

New audit tool unveiled

The Civil Aviation Authority is testing a new system designed to provide a level of confidence in an operator's safety performance and which will lead to audit costs reductions for good performers, and increased CAA attention for those not meeting the public's expectations.

The new system, known as the Audit Quality Index, was initiated by the CAA's new Manager of Safety Audit Rick Bulger and was announced last week at the Aviation Industry Association conference in Dunedin.

The system is designed to improve audit quality, add value to the audit process, and provide a level of confidence in an operator's compliance. For the first time the CAA will have a system that provides an insight into the culture of an organisation. The Quality Index is less interested in the number and type of audit findings than the cultural problems within an organisation.

It will also act as an early warning system for non-performers.

The need for such a warning and confidence level system was a key recommendation from last year's Ministerial Inquiry.

"The Director will be able to see who the good performers are, who the poor performers are, and what actions are being taken. It provides a trigger for further CAA action," Mr Bulger said.

It will permit comparison between similar operators, allow trend monitoring, and provide visibility of operator performance to the CAA.

"The Quality Index system will reward good operators, put pressure on the not so good, and will provide better audits. It will allow operators to compare

themselves against their peers, will show trends in their performance, and for top performers, it will lead to a reduction in audit costs," Mr Bulger said.

"Conversely, it will show the CAA which very poor operators to focus on, to either encourage improvement, provide extra surveillance, or initiate exit action. The index score will not itself lead to suspension, but it will initiate the process that may result either in improved operator performance or exit.

"Operators want high quality audits, and audits that add value to their own quality assurance programmes. They also want their hard work rewarded. We are often asked when the CAA will be 'standing back' and reducing their audit load. This mechanism will do all those things. It gives us the capability to focus our attention where it is most needed, and to eventually pull back from those who have their act sorted out," Mr Bulger said.

The system has been under development and test since February but will be further tested before formal introduction in two or three months.

How it will work

The index process is a qualitative assessment based on each audit and is completed by the audit team leaders. It will form part of the audit report and will be available to the operator to give the company the benefit of the information. It will be used only on routine audits, not on spot checks.

The Index system is based on a score of between 1 and 10 being assigned to each of 10 Quality Index Criteria. The auditor uses a standard "word picture" to make the assessment. The system should be no surprise to those with an understanding of management assessment.

The Quality Index Criteria are:

- Management attitude towards safety
- Clarity of quality system
- Clarity of company documentation
- Facility suitability and upkeep
- Tools/equipment/materials (including aircraft state)
- Adherence to specification
- Personnel skill and numbers
- Control system strength (effectiveness)
- Taking corrective actions
- Auditor's confidence rating (how does the auditor feel about the place based on experience)

For example, when assessing "Management attitude towards safety" the auditor would allocate a score of 1 or 2 if "management is completely reactive – either to incidents/accidents or external events such as CAA audits. There is little evidence of a safety culture in either management or individuals within the organisation".

The auditor would assess a 6 or 7 if "management takes the initiative in safety and has sensible safety procedures in place. However, minor lapses occur. Safety culture is evident."

And they'd give a 9 or 10 for "an excellent attitude to all aspects of safety within the organisation. The safety culture is well embedded in this organisation and obvious in all it does."

The scores are totalled to give the Quality Index, which gives an immediate indication of operator performance and any areas of required improvement.

"This information is within every audit but is not always immediately apparent. Audits do not always show an operator's trend. Audits on their own measure

compliance with the Rules. They do not always measure the vital cultural elements of a company that make the difference between a safe and unsafe operator. The Quality Index will close that gap and give a clear direction on what should happen next," Mr Bulger said.

For example:

- 75 to 100: Consider reducing depth/frequency of audits.
- 65 to 75: Routine audit programme and normal spot checks.
- 50 to 65: Interview the chief executive, increase audit frequency, schedule spot checks.
- 30 to 50: Interview the chief executive, increase frequency of audits, spot checks, special purpose audit.
- 0 to 30: The operator will be referred to CAA's Operator Certification Unit for possible exit action. "These are very poor operators. Industry and the CAA do not want these people in our business," Mr Bulger said.

The "confidence mark" was set at 65 primarily because an expanded scale was needed below that mark for more precisely focused responses. This level was also the point above which the CAA feels it can have confidence in an operator's systems.

A very low score, series of low scores, or downward trend, would be a clear indicator to the Director that more surveillance is needed, with the costs directly borne by the operator.

Conversely, the process provides a carrot for good performance.

"If we are to pull back and audit less, then this process is how can we tell that time has come. The quality index will give us the mechanism to measure our confidence in an operator, and two consecutive scores in the 80s will show an operator is under control, and that our audit scope and depth can be amended in their favour – they will be audited less. Their costs will go down," Mr Bulger said.

Audit frequency can be varied based only on the results of an audit, or series of audits over a period, and the level of confidence the CAA has in the organisation. Where a high level of confidence in an organisation is obtained from the results of CAA surveillance over a period, and the extent of sampling has already been decreased accordingly, the basic frequency may be reduced provided no significant changes occur to the organisation or operation.

Results so far

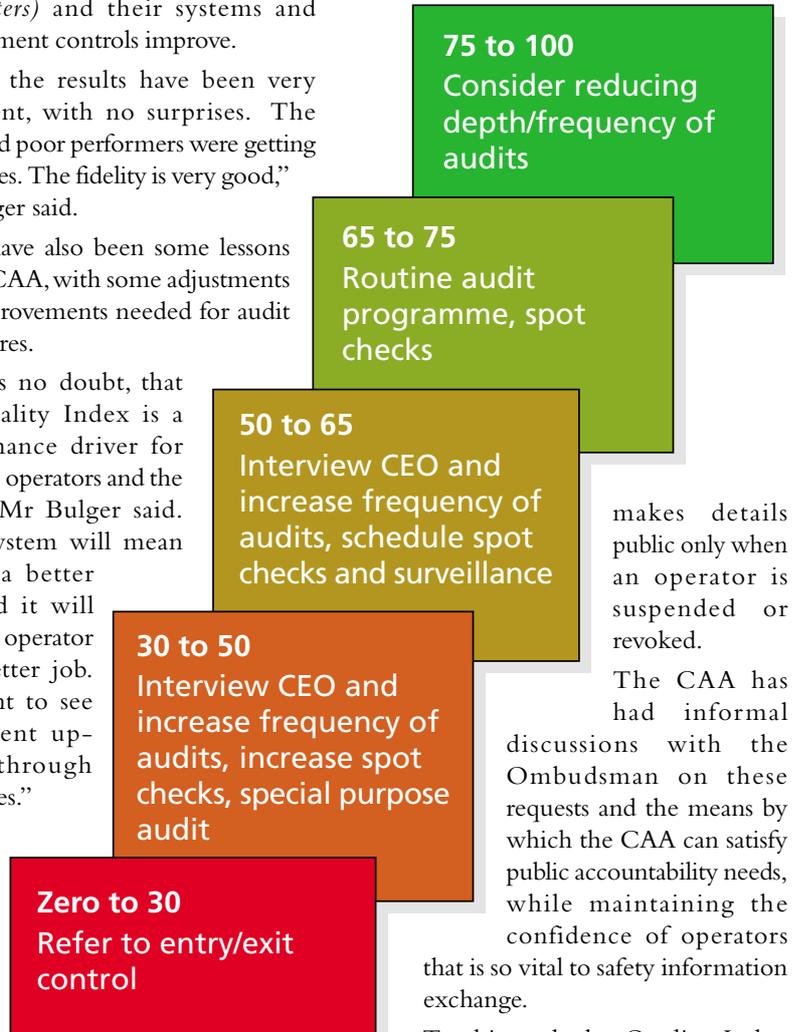
Samples of the tests undertaken on more than 100 operators during the development phase show that about 38 per cent of the general aviation sector are below the 65 mark. This should improve significantly as more operators certificate under Part 135 (*Air Transport Operations – Small Aeroplanes and Helicopters*) and their systems and management controls improve.

"So far the results have been very consistent, with no surprises. The suspected poor performers were getting low scores. The fidelity is very good," Mr Bulger said.

There have also been some lessons for the CAA, with some adjustments and improvements needed for audit procedures.

"There's no doubt, that the Quality Index is a performance driver for both the operators and the CAA," Mr Bulger said. "The system will mean we do a better job, and it will help the operator do a better job. We want to see movement upwards through the scores."

The CAA often receives Official Information Act requests seeking audit reports. A recent request sought all audit reports and all findings and all CAA actions to be supplied each month. The CAA has so far argued that the public can have faith in any operator still in the system. The CAA generally



makes details public only when an operator is suspended or revoked.

The CAA has had informal discussions with the Ombudsman on these requests and the means by which the CAA can satisfy public accountability needs, while maintaining the confidence of operators that is so vital to safety information exchange.

To this end, the Quality Index scores will be made public – but will be aggregated into bands. In this way, the public will see a list of operators in alphabetical order who score, say, between 65 and 75, or between 76 and 85. This "banding" system is used in many other cases where similar information is being made available to the public – the CAA's performance on Y2K preparedness as assessed by the Y2K Readiness Commission is made public in such a style.

The public release of the aggregated information will not begin until the Quality Index is fully tested and operational. The first results are unlikely to appear before February.

The information will be reproduced in the *CAA News* and on the CAA's web site www.caa.govt.nz

Collective scores

The total score also provides a numerical comparison between operators. Operators will not only be given their score, but also will be given a graph that will show their performance against that of their peers. An operator will see only their own name on the graph.

Collectively, the Quality Index scores will allow the CAA to determine industry wide or sector-wide problems, and these can be targeted by either surveillance focus, or through education and information programmes.

Public view

The public and the media have a direct interest in aviation safety performance. They want to know who are the good and not so good performers.

Aerobatics exemption issued

The Civil Aviation Authority has issued a new exemption allowing pilots to continue to fly aerobatics without a Part 61 aerobatic rating. The CAA and industry are currently working on a mechanism to allow the initial issue and renewal of aerobatic ratings and low-level approvals by A and B-category instructors.

These processes are a stop gap until there are sufficient Part 141 Training Organisations or Part 149 Recreational Organisations available to issue aerobatic ratings, low-level approvals, and to conduct continuing competency checks.

In short, this new exemption means pilots who already have ratings and low-level approvals can fly aerobatics below 3000 ft, and with passengers above 3000 ft, provided they continue to satisfy an A or B-category instructor, with aerobatic privileges, of their competency.

New aerobatic pilots, however, or those seeking a new low-level approval, can currently be approved only by the instructor or approved person of a Part

141 or Part 149 organisation upon satisfactorily completing ground and flight-training courses, and demonstrating the level of competency outlined in Part 61 and its Advisory Circular. Such courses must be acceptable to the Director. The initial issue mechanism being developed is expected to allow the instructors to provide the training and approval from outside the organisational requirement in the meantime.

A low-level approval is required for aerobatics below 1500 ft, and is issued to a specified height. No pilot may carry out aerobatics below 3000 ft when carrying a passenger.

This new exemption applies until 31 March 2000. The first organisations to issue these ratings and low-level approvals are expected to be certificated within the next three or four months.

The exemption, 99/EXE/87, can be found on the CAA website www.caa.govt.nz under "Rule Exemptions / Part 91". ■

The CAA used to issue the low-level aerobatic approvals itself, but it devolved this to industry with the advent of Part 61 *Pilots Licences and Ratings*.

The problem with this was that the ratings, and their two-yearly competency checks and renewals, have to be issued by a Part 141 Training Organisation or Part 149 Recreational Organisation – and there are not a sufficient number of these organisations certificated.

The solution was the issue of an exemption from the aerobatic rating requirements of Part 91 *General Operating and Flight Rules* until 31 March last year. This exemption allowed A or B-category instructors to approve aerobatics and provide low-level approvals. This exemption expired and was renewed until 31 March this year. In March, however, there were still insufficient Part 141 or Part 149 organisations certificated to provide ratings for powered aerobatics.

The Assistant Director for Rules and Standards, Peter Blackler, opposed renewing the exemption yet again. He said that the excellent aerobatics training elements of Part 61 and its supporting Advisory Circular (AC 61-1.12) had been written by industry and that it was time they were used.

Instead of rolling over the old exemption again, the CAA and the industry together developed the new exemption.

Deer recovery licensing changes

The Department of Conservation is opening up aerial wild animal recovery with changes to its licensing system next month.

From 1 October, helicopter operators will be able to hunt and recover wild animals without first gaining a Department of Conservation Wild Animal Recovery Service Licence (WARS Licence). All current WARS licences will be repealed and alternative limits to these activities will be put in place.

Operators who wish to hunt on private land will require the landowner's permission.

Those who wish to hunt on land administered by the Department of Conservation (DOC), including those who previously held a WARS Licence, will require a concession from DOC authorising their activity.

Any helicopter operator and any other company can apply for a DOC concession. The application will be assessed on criteria such as the nature and effects of the activity, visitor safety,

conservation management, and the role of recreational hunters in achieving wild animal control.

A DOC concession will normally cost a basic set-up fee of about \$500 (excluding GST) as well as annual charges of between \$100 and \$200. Operating without a concession will attract fines of up to \$10,000 for individuals and up to \$80,000 for companies.

There may be some areas of DOC-administered land that are not open for wild animal recovery. Details of any restrictions are available from the DOC office in the area you intend to operate in. Operating only within the appropriate areas is the responsibility of the pilot-in-command.

Every helicopter operator who opts to take part in the hunting and recovery of wild animals must comply with the Civil Aviation Rules, and with other relevant New Zealand legislation.



Photograph courtesy of Neville Dawson

Bob Guard and RNZAC win Director's Awards

The Director of Civil Aviation Awards have gone to the Royal New Zealand Aero Club for its efforts in helping to halve the light aircraft accident rate and to Captain Bob Guard of Air Nelson in recognition of his unstinting quest for high safety standards as Operations Manager.

These premier aviation awards are presented each year to the individual, and to the company or organisation, in whom the safety ethos is overt – someone who has gone out of their way to do things the right way.

The Awards reward “an attitude towards safety” and the direct actions by the nominees that have resulted in a greater level of safety, and have encouraged others to adopt a similar safety ethos. The nominees are those who recognise that aviation is safe only when individuals and organisations accept the safety responsibility.

The Awards are open to all individuals, and to operators and companies, involved in aviation in New Zealand.

Making the presentations at the Aviation Industry Association conference in Dunedin, the Director of Civil Aviation, Kevin Ward, said the nominations had been particularly strong this year.

The Royal New Zealand Aero Club had won the Organisation Award for its efforts in halving the light aircraft accident rate since 1995. At that time the light fixed-wing sector was having about 50 accidents per 100,000 flying hours – or roughly 50 accidents a year. The RNZAC had set itself the challenge of meeting the CAA's safety target for the sector of halving the rate. It took actions such as actively participating in the CAA's AeroKiwi and safety co-ordinator programmes, and establishing its own annual instructor seminars.

“The proof is in the figures. Of the 12 groups we monitor, the light aircraft sector has led the field in accident reduction and has exceeded its target of halving the accident rate. The RNZAC has been at the forefront in that exceptional achievement,” Mr Ward said.

“Despite its large number of amateur pilots, and large combined fleet of some hundreds of aircraft, this organisation has not had a single fatal accident during those five years. This organisation has led from the front and set an example for today and for the future.”

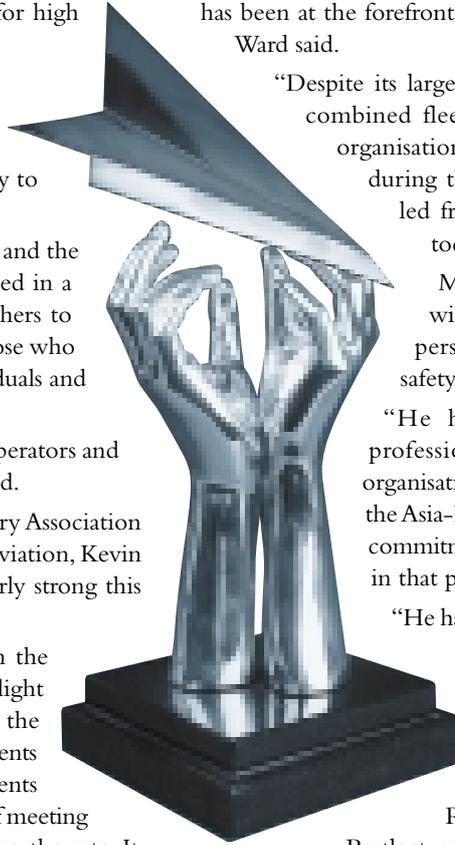
Mr Ward described the individual award winner, Captain Guard, as making a very personal and conscious commitment to safety over a long time.

“He has worked very efficiently and professionally as a senior figure in a large organisation – the biggest carrier of its type in the Asia-Pacific region – that has made a positive commitment to safety. He has been a true leader in that process,” Mr Ward said.

“He has helped ensure that this carrier doesn't just comply with the Rules, but sets and maintains higher standards than the CAA and the Rules require.”

Past winners for the Individual trophy have been Robyn Reid, Russell Jenkins; Brian Richards, and Tim

Bartleet, and winners of the Organisation award have been the Queenstown User Group Air Safaris Ltd, and the Taupo Airport Authority. ■



New principal medical officer



Dr Kathleen Callaghan joined the CAA as the new Principal Medical Officer in May. Her role is to provide specialist aviation medical advice to the CAA, and to industry. Kathleen contributes to CAA policy projects, the Civil Aviation Rules, and liaises with other civil aviation authorities worldwide. She also contributes specialist knowledge to accident and incident investigations.

Kathleen first became involved in aviation during her medical residency in Dubbo, Australia. Dubbo is near Narromine, which is a popular gliding spot. As there wasn't much else happening in the area, she spent every spare moment gliding – and got hooked.

When she discovered that there were jobs specific to aviation medicine available, she decided to mix business with pleasure and make it her career. It is a specialised field with just four full-time jobs specialising in aviation medicine in New Zealand.

Before joining the CAA, Kathleen spent three and a half years in the RNZAF at the Aviation Medicine Unit in Auckland as the Flying Personnel Medical Officer. Kathleen also holds her fixed-wing PPL. In addition, she has a Master of Science in psychology – focusing on areas pertaining to human perception and performance in aviation.

Safety Investigation – meet the team

Manager – Richard White



Richard White has been with the CAA for more than eight years and has managed the Safety Investigation Unit for the past two.

Richard has a wealth of experience in the industry and has travelled the world as both an aeroplane and helicopter engineer.

“The whole purpose of Safety Investigation is to understand

what went wrong, why it went wrong, and to put in place effective corrective actions that in time, with industry’s cooperation, will reduce the rate of accidents and incidents,” he says.

It was a long and winding flight path that lead Richard to managing the CAA’s Safety Investigation Unit.

Born a Geordie, (given away by the omnipresent guttural tongue), young Richard went directly from school to an aircraft engineering apprenticeship with the British Army. He began engineering for army facilities, which involved working on Sioux and Alouette helicopters, and a range of army fixed-wing aircraft. After several years, Richard became restless and decided to throw in the army oily rag. He bought a Volkswagon Combie and meandered through Europe en route to a job on “Civvy Street”.

“I had a job offer from Singapore and thought taking three months travelling down the hippy trail would be a good way to get there.”

Judging by the enthusiasm with which Richard tells the story it was a *very* good way to get there. Rather than fading, his smile broadens when describing being caught in a hail of bullets while repairing the Combie’s fanbelt in Afghanistan. A gang of bandits liked the look of the Volkswagon and fancied it for themselves.

“I fixed the fanbelt in record time and shot off into the distance.”

Richard stayed in Singapore for three months working for Heli Orient at Seletar air base before returning to England to a job with Bristow Helicopters, maintaining Sikorsky S61s and Bell 206s. Richard then went to the Sultanate of Oman, working on Bell 205 and Hughes 500 helicopters, and Fairchild Metro, Britten-Norman Islander, and Learjet 25 aircraft for the Royal Oman Police Airwing.

After two years Richard returned to England to work as deputy chief engineer for a charter-engineering firm near Shoreham. It was here that Richard learned to fly helicopters and gained his PPL. He still retains both his New Zealand and UK licences.

Richard later moved to Saudi Arabia, as a senior helicopter engineer for Saudi Arabian Airlines, supporting a geological survey team. He was then invited to join the UK CAA as an Airworthiness Surveyor. After his initial training at Redhill, he was posted to Heathrow Airport Office. At Heathrow he began monitoring the British Airways maintenance facility for Boeing 757 and 747 aircraft.

“This was a very steep learning curve,” he says, “However, I was sent on appropriate training courses and during this time I got to know all about ETOPS (Extended Twin-engine Operations), which involves large twin-engine aircraft flying over extended distances.

“I was also responsible for surveying a range of aircraft companies from microlight manufacturing to medium engineering manufacturers, gliders, and right through to the big jets.”

Richard joined the New Zealand CAA as a safety auditor after hearing about a job opportunity through a friend, and he has been here for nearly a decade (the longest he’s ever stayed anywhere). During this time he qualified as a lead auditor with the Institute of Quality Assurance in London. He later trained as an Air Accident Investigator in Sweden shortly after the Transport Accident Investigation Commission (TAIC) ceased investigating every fatal accident. Richard carried out the CAA’s first fatal accident investigation in 1996, and the CAA has investigated 23 of 31 fatal accidents since then. The pictures Richard had viewed as part of his training did not completely prepare him for a real-life accident scene.

“It’s different seeing it in the flesh. You have flashbacks for two to three weeks after the investigation, where you’re picturing what you’ve seen and you can’t get away from that.”

However, the Safety Investigation Unit is a close team that is supportive in times of stress.

“It’s a good bunch of people and there is a good sense of camaraderie, which to some extent is built on that kind of adversity.”

Ian Stobba – Safety Investigator (Airworthiness)



Ian Stobba has been with the CAA for 27 years – and expects to stay for some time yet. Ian has witnessed some dramatic changes within the CAA in his time and has worn the various hats of: Airworthiness Surveyor, Senior Airworthiness Surveyor, Airworthiness Superintendent for the Central Region, Controller General Aviation Maintenance, and is currently a Safety Analyst. He enjoys the challenge of the job but

concedes it can also be stressful. Ian is a born-and-bred Wellingtonian, and after leaving school he embarked on an engineering career with an apprenticeship at de Havilland in Wellington. He then crossed the Tasman and spent four years with Ansett establishing an overhaul facility in Dubbo before he entered the CAA fold.

“Once you join the aviation industry, the opportunities are great. In a lot of other engineering industries there’s not the opportunity to develop your own skills as much as there is in aviation.”

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Steve Walker – Safety Investigator (Maintenance)



Steve Walker has been a Safety Investigator with the CAA for four years and likens his job to being a detective.

“It’s like a jigsaw puzzle, you have the picture but you can’t see it until you put all the pieces together, and sometimes you don’t have all the pieces.” Steve’s experience couples 17 years of aircraft engineering with a Helicopter/Aircraft Accident Investigation course.

This means that Steve does not look at a bent metal pipe and see a piece of rubble, but rather, he sees an integral piece of the puzzle. Steve now works from Christchurch, where he continues to investigate accidents and safety concerns. He says that the role of the Safety Investigation Unit is frequently misunderstood by industry.

“We can be perceived as enforcers, but that is not our role. We’re Safety Investigators trying to raise the level of safety in the industry, which is for the good of everyone.”

Nigel Strang – Safety Information Officer

Nigel Strang has been at the CAA for one year and has been flying since he first contracted the “bug” on an introductory flight when he was 17. Since then, he has gained his C-category instructor’s rating and has flown for the Bay of Islands Aero Club and Great Barrier Airlines, and has helped to establish Vanua Air Services in Fiji.



Nigel holds a Bachelor of Aviation from Massey University (he was the first person to graduate from the course). Central to his role as Safety Information Officer is his work compiling the Unit’s procedures manual. He also provides administrative support for the Unit.

Wendy Booth – Safety Investigator (Air Traffic Service)



Hamilton-based Wendy Booth has been with CAA for seven years and has been involved in aviation since she worked as an air traffic control assistant at her local airfield in the UK when she was 14. Wendy went on to become an aerodrome flight information service officer and air traffic controller, combining this with a career as a flying instructor (B-category).

In 1985, Wendy continued these

careers in Vanuatu, where she learnt to speak French and the local tongue, Bislama. While she was there, Wendy’s interests included golf and scuba diving, and she became a qualified rescue diver – but gave it up when confronted with New Zealand’s colder waters. A qualified safety auditor and meteorological observer, she now holds her New Zealand PPL and has about 1,000 hours flying experience. Wendy finds safety investigation work rewarding and enjoyable.

“The role of a Safety Investigator is to identify safety issues and implement corrective or preventative actions. I see my job as an opportunity to give something back to aviation, having received so much from it in the last 29 years,” says Wendy.

Peter Stevenson-Wright – Safety Investigator (Operations)

Peter Stevenson-Wright has been with the CAA on a temporary contract for nearly two years and also works for Wellington Airport’s Aviation Security Service. “Both jobs allow me to keep in touch with the pulse of the industry,” he says.



Peter gained a PPL in 1982, a CPL in 1988 and B-and D-category flight instructor ratings in 1993.

He also holds a multi-engine aircraft rating, instrument flying rating and a basic gas turbine rating.

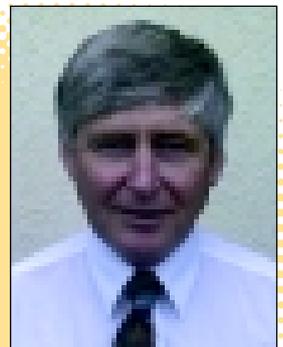
As a Safety Investigator, his main focus is investigating minor general aviation occurrences and, occasionally, dangerous-goods incidents.

“Ideally, I would like to think my work will help those involved to learn from their mistakes and to continue with their flying activities in a safer manner.”

Peter enjoys constructing plastic models, reading, and surfing the Internet in his spare time.

Alister Buckingham – Safety Investigator (Operations)

Alister Buckingham has two passions in life – planes and trains. When questioned about the latter Alister confirms his inner child is alive and well.



“Every little boy has a thing about trains, whether he admits it or not,” says the 52-year-old. So, not only is Alister an ATPL (helicopter and aeroplane) and B-category aeroplane instructor, he is also a certified steam engine driver.

Alister was already a seasoned accident investigator when he joined the CAA a year ago after six years with the Transport Accident Investigation Commission (TAIC) as an inspector of air and rail accidents.

Due to the nature of the work, Alister finds team camaraderie and support is particularly important.

Continued over...

Alister gained his PPL in 1966 and two years later, his CPL and Instructor rating. In 1970 he joined the RNZAF and briefly flew DC3s before a five-year stint as an Iroquois pilot. Since leaving the Air Force he has flown for a commuter airline, an offshore oilrig support operation and also completed three flight tours of Antarctica. The final tour was curtailed by the sinking of the expedition support ship.

Alister's last full-time flying position was based in Townsville flying Bell 412 and Beech 200 aircraft for the National Safety Council of Australia and its successor the North Queensland Emergency Response Group.

Alan Daley – Safety Investigator (Operations)



Alan Daley recently joined the team and is based in the CAA's Auckland office. Before joining the CAA in July, he was aviation manager and flight examiner at Aviation Services Ltd. Alan has 20 years experience as a flight instructor (now A-category) and holds a current ATPL (Aeroplane). He spent three years in Papua New Guinea from 1989 to 1991 working for Mission Aviation.

Based in Mount Hagen and

Goroka, he spent much of his time flying to remote airstrips in the Highlands. Alan has four children ranging in age from 11 to 19, and he has spent the last three-and-a-half years renovating his Howick home. Alan looks forward to working in a safety role at the CAA.

“If you can find the reason why an incident or accident has happened and can inform industry of the causal factors involved to prevent that occurrence happening again – I think that's tremendous.”

Mike Carrelli – Safety Investigator (Operations)

Mike Carrelli is the latest addition to the team and is in the process of emigrating from South Africa (Namibia) to join the CAA. Mike's background is in both operations and maintenance – skills that will be put to good use as a Safety Investigator.



Mike first became interested in aviation when he was 15 and lived near a Bell 206A Jet Ranger. One day he tracked the helicopter to its landing pad and there met and befriended the maintenance engineer. After taking a test flight the die was cast and Mike's career path set. He joined South African Airways on an aeronautical maintenance engineering apprenticeship. After gaining his PPL and completing the apprenticeship, he became an assistant flight safety officer. During this time Mike gained his CPL, and took one year's leave to complete his South African SCPL with twin IF and a Grade 2 Instructor rating. Prior to joining the CAA Mike flew for Air Namibia where he gained his ATPL and flew Beech 1900s, B737s and B747s. He has just over 7,000 hours of flying experience (4,000 on jets).

Mike's skills are not restricted to aviation. In his spare time he built himself a modified Jaguar XJ6 with a 350hp V8 engine

and a six-speed gearbox. Mike also designed and built all the necessary electronic circuits. Sadly, the Jag is staying behind in South Africa, but Mike expects to start on a new project in New Zealand. Safety Investigation interests Mike because it offers the opportunity to exercise his diverse range of skills.

“Furthermore, the CAA is working to very high standards, making it right in the forefront, if not a leader, in world-wide aviation.”

Owen Stewart – Safety Investigator (Maintenance)

Owen Stewart has worked as a Safety Investigator for the CAA for four years. He currently operates from the Auckland office. He is a LAME with groups 1, 2, 4 and 6 (aeroplane) and groups 1, 2 and 3 (engine) ratings.



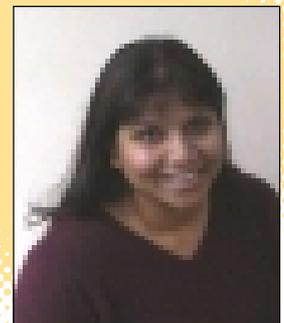
Owen was born within sight and sound of Ardmore, and when he was a young lad he would cycle to the airfield and watch the aeroplanes come in. He completed an apprenticeship with Air New Zealand in 1983 and went to work at Ardmore restoring a fleet of Bristol Freighters. Owen then entered general aviation, working on a range of aircraft from gliders and home-builts, through to light singles and twins as well as helicopters and turbo props. He has worked for Dwen Airmotive, Tribe Airparts, Wing and Rotor, Waitemata Aero Club and Gulf Aeronautics, and he was a foreman at Airwork New Zealand Ltd in 1986–87. He later joined Ansett and gained his engineering ratings on Boeing 737s and British Aerospace 146s. After this, he went to Ogden Aviation in Mangere, servicing Boeing 747s. He is a keen fisherman and spends his spare time pottering about with model boats. Owen is also into pointillism. This is where a picture is drawn using only minute dots with an ink pen. His last picture took three and a half years to complete.

Owen believes that the industry has worked hard to create aviation safety, and he hopes that with the support of the CAA, this will continue to progress.

“Safety is a culture, and since joining the CAA I have seen both general aviation and airline operations' safety culture steadily improve.”

Jayshree Budhia – Safety Information Officer

Jayshree lends a hand to the Safety Investigation Unit and is on a temporary contract. She started helping out in the unit three months ago. She recently completed a Bachelor of Aviation at Massey University. Her desire to become involved in aviation safety did not come about through a love of flying. Instead she travelled to South East Asia four years ago when there happened to be a public panic about aircraft safety. This got Jayshree thinking and led her to enrol in an Aviation degree. Most of her time is spent entering occurrence reports data into the production database and “manning” the 0508 4SAFETY (472 338) line. Jayshree is originally from Wellington and has moved back since the completion of her study.



Every occurrence counts

The Safety Education and Publishing Unit has recently released a new safety poster titled "Every Occurrence Counts". The aim of the poster is to encourage aviators to report all of their occurrences. Viewed collectively, these reports can be analysed to show up patterns that can be targeted to prevent accidents. Occurrence reports can form the basis of Airworthiness Directives, safety programmes and advisory letters to operators.

The new safety poster is based on the Heinrich Ratio of accidents, which says that every fatal accident is likely to have been preceded by about 600 related occurrences. Although there were 3,626 occurrences reported to the CAA in 1998 this is still well below the ratio of 600 to every fatal accident. In the six months to December 1998, the ratio of accidents to incidents reported was, on average, one to four. David Eyre, of the Safety Investigation Unit, says that this number of incidents is well below the amount expected, indicating a low reporting rate. This makes it difficult to meaningfully inform industry of likely safety concerns.

"We want to be providing safety information to the industry that can drive safety changes, but we're just not getting enough reports to be able to do that," he says.

Occurrence reporting is vital to the work of two specific units of the CAA – Safety Investigation and Safety Analysis.

Safety Analysis Unit (SAU) manager Peter Nalder, says that the limited number of occurrence reports inhibits the unit's ability to draw statistical conclusions. The unit uses statistical analysis to make safety recommendations and to increase industry awareness of potential safety issues and concerns.

"To be able to identify things that the CAA can and should do to ensure that we achieve acceptable levels of safety, we need industry to report all occurrences," he says.

Peter says that operators often fail to report occurrences because they do not recognise the significance of the event.

"We believe that the smaller safety failures are almost certainly precursors to

accidents. In order to increase safety we need to identify these underlying causes of accidents and incidents."

Although an isolated or minor incident may seem insignificant to the operator, Peter's team may find the information very useful.

Aviation Safety



Every Occurrence Counts CAA

"When put together as part of the big picture it may be much more valuable," Peter says.

Manager Safety Investigation Unit Richard White says that industry members may also fear retribution. This is unnecessary, as the Safety Investigation Unit does not carry out investigations for punitive purposes. Instead, their investigators work to discover the causes of accidents and to suggest to industry preventative measures that could avoid accidents.

"We encourage people to report all their accidents and incidents to the CAA and we will work alongside them to discover the causes and to try and improve the aviation system for the benefit of everyone," says Richard.

"The safety investigation work we do is purely to increase aviation safety, and the information we receive is not passed on to the CAA's enforcement unit.

However, if it is apparent that information has been given to us that is false, or if the occurrence has caused unnecessary danger, then the basic details of the event may be passed to the CAA's Regulatory Tools Coordination Committee (RTCC), who will then decide if enforcement action is appropriate. But less than 10 out of 2,000 safety investigations per year would take this route."

Peter McNeill, Manager Law Enforcement, says that reports made to Richard's team cannot be used for enforcement purposes except where the information discloses that a person caused unnecessary danger.

"Only two accidents and one incident were referred to the Law Enforcement Unit in the past 12 months and only the incident and one of the accidents resulted in prosecution," he says.

Occurrences can be reported by filling out an occurrence form, or by calling free phone 0508 4SAFETY. The Occurrence forms CA005 are available on the CAA web site or from the CAA's Safety Investigation Unit.

What we mean when we say:

Accident means an occurrence that is associated with the operation of an aircraft and takes place between the time any person boards the aircraft with the intention of flight and such time as all such persons have disembarked and the engine or any propellers or rotors come to rest, being an occurrence in which:

- (1) a person is fatally or seriously injured as a result of
 - (i) being in the aircraft; or
 - (ii) direct contact with any part of the aircraft, including any part that has become detached from the aircraft; or
 - (iii) direct exposure to jet blast

except when the injuries are self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to passengers and crew; or

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- (2) the aircraft sustains damage or structural failure that:
- (i) adversely affects the structural strength, performance, or flight characteristics of the aircraft; and
 - (ii) would normally require major repair or replacement of the affected component except engine failure or damage that is limited to the engine, its cowlings, or accessories, or damage limited to propellers, wing tips, rotors, antennas, tyres, brakes, fairings, small dents, or puncture holes in the aircraft skin; or
- (3) the aircraft is missing or is completely inaccessible:

Incident means any occurrence, other than an accident, that is associated with the operation of an aircraft and affects or could affect the safety of operation:

Free phone numbers

The CAA's Safety Investigation Unit provides two 24-hour free phone numbers you can call about safety concerns or accidents. It is important that you call the correct number in order to access the correct service.

0508 4SAFETY (723 389)

Call this number if you have a safety concern and the details will be loaded onto our database. Your concern will be investigated if appropriate.

0508 ACCIDENT (222 433)

Call this number to report an accident. You will be connected directly to the Duty Investigator.

Your rights

You have certain rights regarding confidentiality and non-prosecution when submitting information to the CAA. These can be found in Part 12 *Accidents, Incidents and Statistics*, available free on the CAA's web site www.caa.govt.nz

12.61 Confidentiality of persons submitting information

The Authority shall, when confidentiality is requested by a person submitting information under 12.55 or 12.57

- (1) as soon as practicable, remove any information that might reveal the identity of the source; and
- (2) not make any other record of the information removed under subparagraph (1).

12.63 Non-prosecution

The Authority shall not use or make available for the purpose of prosecution investigation or for prosecution action any information submitted to it by a person under this Part unless

- (1) the information reveals an act or omission that caused unnecessary danger to any other person or to any property; or
- (2) false information is submitted; or
- (3) the Authority is obliged to release the information pursuant to a statutory requirement or by order of a Court. ■

Copies of the safety poster "Every Occurrence Counts", shown on the previous page, are available free from the CAA's Safety Education and Publishing Unit.

What's happened to Aerial Work Certificates?

Aerial Work Operations no longer exist. They have been replaced by Commercial Transport Operations. The two are very similar, but there are some important distinctions.

Who can do Commercial Transport Operations?

To do Commercial Transport Operations, you need a Part 119 Air Operator Certificate – so far just six operators who previously held Aerial Work Certificates have gained this new certificate.

To bridge the gap, the remaining operators have been issued with a temporary Part 119 Transitional Air Operator Certificate, which allows them to continue their operations until 28 February 2003. However, any person who has not been issued with a Transitional Air Operator Certificate who is conducting aerial work operations under the provisions of Part 91 *General Operating Rules* and is now requiring to conduct the same activities under Commercial Transport Operations, have until 30 March 2000 to achieve 119 certification.

What does your Transitional Air Operator Certificate allow?

You can not do any more under your Transitional Certificate than you could in the past under your Aerial Work Certificate.

The Transitional Certificate does not allow you to carry fare-paying passengers or goods for hire and reward.

But you can carry 'passengers' for the same purposes as were allowable under your old Aerial Work Certificate. These were normally to carry out crewing tasks for:

- Aerial survey, aerial inspection, and aerial search, including the carriage of persons essential to the purpose of the operation.
- Aerial construction of power and telephone lines, including the positioning of persons providing essential ground support.
- Air ambulance functions in undeveloped areas, but including as passengers only the patient and the necessary attendants.
- The carriage of supplies, produce, or articles, to, from, or within undeveloped or remote areas.

The Transitional Certificate has not thrown open the door to all the privileges of a full Part 119 Air Operator Certificate.

What rules and regulations do you have to comply with?

Transitional Air Operator Certificate holders must comply with all applicable Civil Aviation Rules.

The Air Operator Certification and Operating Rules (Parts 119, 121, 125, 135) are not applicable. However, Part 119 *Air Operator Certification*, rule 119.169 *Transition* does apply.

Under your Transitional Air Operator Certificate, you must also continue to comply with all of the same regulations, CASOs, and other requirements as you did under your old Aerial Work Certificate.

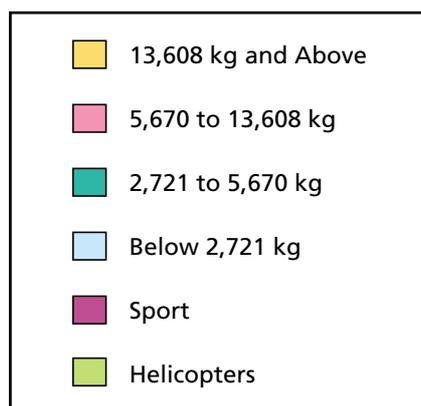
Aviation safety report

Every issue of *CAA News* will include some results of CAA safety investigation and analysis as a means of returning this information to you, the industry.

This issue, looks at the “causal factors” that contribute to accidents. When an accident investigation is completed, the CAA’s Safety Investigators attribute the cause to one or more factors from a list of 69. In most cases, several causal factors combine to produce an accident.

This information is then analysed by the Safety Analysis Unit to try and establish whether any patterns or specific grounds for concern are developing. This information is then returned to industry via letters, airworthiness directives and safety education strategies. Incidents and defects are also monitored in this way.

KEY

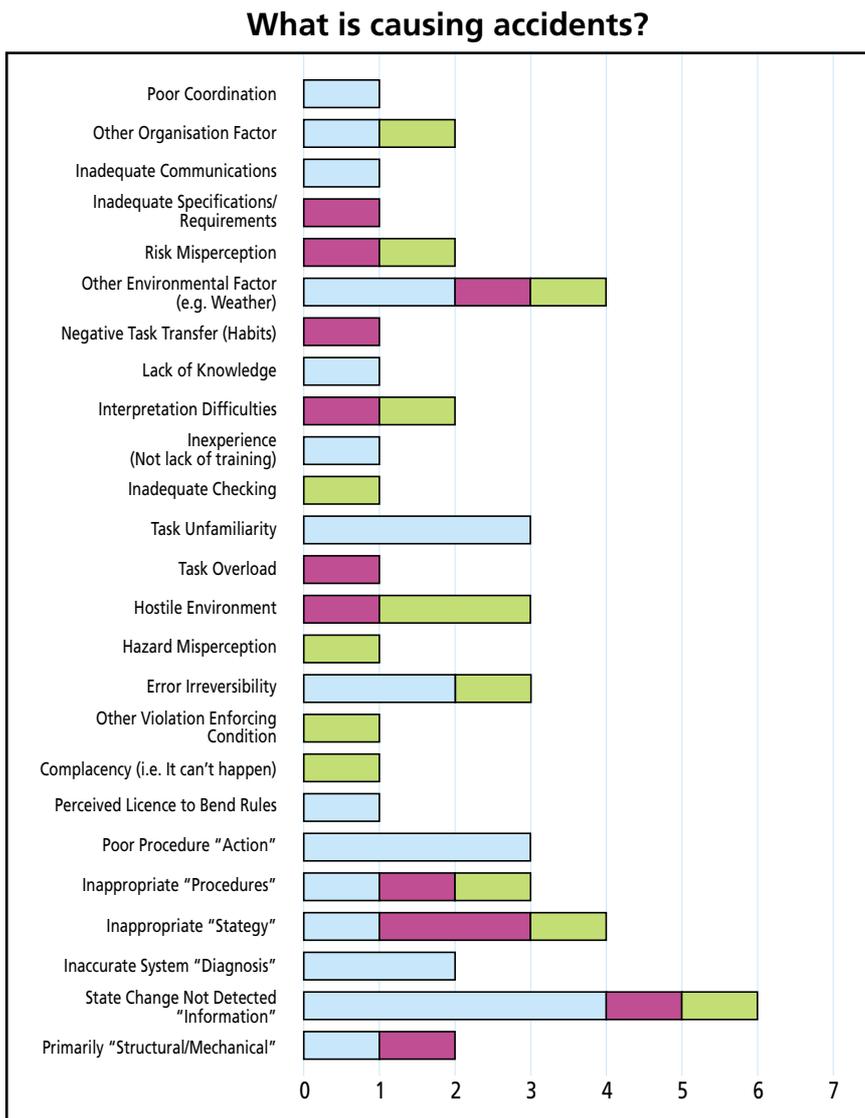


The graph shows how many of each causal factor have been assigned to the accidents reported to the CAA in the six months to 31 December 1998. The three most common factors in this period were the pilot’s failure to detect that a state of change had occurred, the pilot adopting an inappropriate strategy, and environmental factors, such as the weather.

Here are some examples of the situations in which these three main causal factors arose.

State of change not detected (information)

- A fixed-wing aircraft failed to get airborne from a grass strip and crashed into scrub off the end. It is thought a marked reversal of wind direction meant the aircraft had taken off down-wind. The state of change (the wind reversal) had not been detected.



- A helicopter involved in agricultural spraying suffered a power loss whilst transiting down wind. The engine was subjected to a weak mixture that resulted in the loss of power. The crew had to deal with an abnormal landing situation. The pilot had not noticed the state of change (in the air/fuel mixture), which caused the loss of power.

Inappropriate strategy

- The pilot failed to prevent a heavy landing after the aircraft encountered windshear on late final approach. The pilot chose the inappropriate strategy of flying the approach at normal airspeeds, inappropriate because the length of the field was relatively short.
- A glider pilot elected to make an out-landing when it became apparent that there was insufficient height to reach the aerodrome. The pilot had abandoned an

approach to one vector on which landing was assured, and positioned for another requiring a longer approach. The glider was damaged on landing. The pilot chose an inappropriate strategy by selecting a vector that required more height than was available.

Other environmental factor (eg weather)

- There was a sudden loss of engine power leading to a forced landing from a low level. It is most likely carburettor icing occurred, because of the environmental conditions, despite the use of carburettor heat.
- The helicopter blew over in a severe wind gust. The rotor was turning at idle after engine start. The pilot was taken unawares by a severe wind change, as conditions had been light up to that time. ■