

# CAA NEWS

*Informing for Safer Aviation*

AVIATION  
SAFETY PLAN  
FORUM

towards  
2005



# Aeronautical Chart Reprints

Many readers will be aware of the fact that a number of errors were found on the aeronautical charts effective on 6 September. Information on those errors has since been notified by NOTAM and AIP Supplement and is available at [www.ifis.airways.co.nz](http://www.ifis.airways.co.nz) and [www.caa.govt.nz](http://www.caa.govt.nz). A joint CAA-Airways working group has since reviewed all charts. No further critical errors were identified.

From this review, a two-stage approach has been developed.

Firstly, to correct critical errors and improve printing quality, it is intended that the following charts be republished:

- **Aeronautical Topographical Charts – Sheets 1, 2, 3 and 4**
- **Visual Terminal Charts – Auckland/Ohakea, Napier/Gisborne and Queenstown/Milford Sound**
- **Area Charts – Auckland/Hamilton/Bay of Plenty, Ohakea/Wellington/Nelson and Christchurch.**

Republished copies of these charts will be distributed free of charge to all customers who already have the current editions. These charts will be distributed in the first week of December.

Secondly, the review identified a number of areas in which the production of the charts can be significantly improved. Some of these include the manner in which changes are managed right from concept to publication, the presentation standards used, and the technology used to support production. This will essentially lead to a total overhaul of the production of the charts.

For this second stage, Airways will be inviting customers to have input into the charting standards. There will be further information on how this consultation will be managed.

**In the meantime, you should use the 6 September 2001 edition of charts. Previous editions are no longer current. You should also refer to NOTAMs and AIP Supplements. Further information is available at [www.ifis.airways.co.nz](http://www.ifis.airways.co.nz) ■**

## Rotary Wing Update

**Two Rotary Wing Unit projects are well under way, with Part 135 certification running well ahead of schedule and prototype Time-in-Service Recorders being tested.**



With well over a year still to run till the February 2003 deadline, more than half of Part 135 operators have completed certification, a mark of increasing industry faith in the system, according to CAA Rotary Wing Manager Andy Redfern.

All multi-engine operators met the February 2001 deadline. With total compliance in that sector,

Andy says the remainder of Part 135 operators are keen to get on with the job. Only 28 helicopter operators remain to be certificated, and a number of those have already submitted applications.

“We are very pleased that operators are starting their Part 119/135 certification early. The offer we made to replace a routine audit with an entry inspection makes sense – it helps us reduce our workload and represents a significant saving for the operator. It’s a job that has to be done, and the sooner we do it the better,” he says.

“The new Rules do require a shift in the attitude of owners and pilots, but that is starting to happen as people become familiar with the new system.”

Andy says the benefits of the CAA restructure are also beginning to show, with a dedicated rotary wing unit offering helicopter operators the opportunity to deal with specialised staff.

Help is on hand for operators tackling an exposition for the first time. Part 119/135 project officer Peter Kirker is available for certification queries on Freephone 0-800-119 135.

### Tamper-Resistant Time-in-Service Recorders

Introduction of tamper-resistant Time-in-Service Recorders (TSR) has long been sought by CAA and industry, but their introduction has been delayed by the lack of suitable devices being available – meaning the devices themselves needed to be developed in addition to the rules and technical aspects of the project.

Andy says it is still too early to say exactly when the devices will make their way into cockpits, but he expects them sooner rather than later. Encouraged by the CAA, some designers are already developing and testing suitable units, even though the recorder specification has not yet been finalised.

The specifications will be outlined in a New Zealand Technical Standard Order (NZTSO) being drafted by the CAA Aircraft Certification Unit, due to be published in February. The Rules Development Unit has restructured the necessary rules so that it is clear how recorder operation will be regulated.

The devices will be required on most aircraft with finite-life components. They will record the time-in-service of the aircraft from takeoff to landing, with time-in-service information entered in the aircraft tech log at each 100-hour inspection. A return will be made to the CAA at each ARA.

Andy is full of praise for the progress the industry is making, but says it is up to the industry to continue to build on that momentum.

“The industry needs to move forward. With a specialised helicopter unit in the CAA and increased safety awareness amongst industry participants there is a good opportunity to do so. The high accident rate has impacted on the industry’s reputation, both in New Zealand and overseas,” Andy says.

“The new rules offer a good basis for safe operations, but it will be the attitude of the people who work with them that will decide whether or not our safety record improves,” Andy says.

Andy can be contacted at Tel: 0-4-560 9439 or [redferna@caa.govt.nz](mailto:redferna@caa.govt.nz) ■

# towards 2005



## The Aviation Safety Plan Forum

The CAA develops a safety plan every year. All its safety functions are derived from this plan, designed to reduce the number of accidents, and meet the Safety Targets. Input from industry has been minimal in the past, but that changed this year, with a two-day planning forum being held to develop the drivers for the safety plan in partnership with industry participants from every sector.



It was the first gathering of its kind, bringing together aviation participants from such diverse activities as parachuting and flying an airliner. Incoming director of Civil Aviation, John Jones, set the scene in his opening address:

“The accident statistics are the balance sheet. They tell us that we have to change the way we do things around here.

We cannot continue – none of us can continue – to do business the way we have. The Safety Targets are the level of safety that the Government, representing the people of New Zealand, have said must be achieved in each of the nine sectors of aviation activity.

“We must together identify the fixes that will get the accident rates down. If not we will see more friends and colleagues die, and more aircraft scrapped – with a cost on all of us. I believe that the collective wisdom and effort of our community is vital to the planning and implementation process. The issues are just too big for the CAA alone. Community input is needed to develop the plan, and for cohesion in implementing its strategies.”

Participants were given information on the record of aviation accidents. They were briefed to examine the causes of accidents, and then to propose how to reduce accidents. They formed five working groups, each with a facilitator from industry, and a mix of people from all types of aviation operation.

### The results

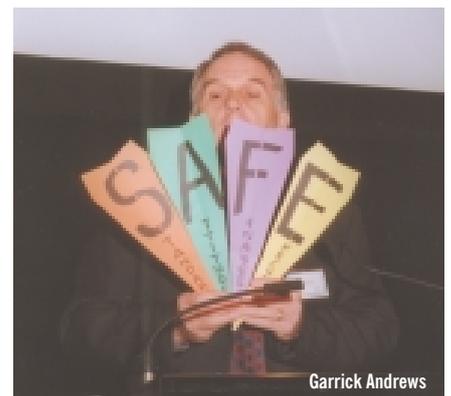
Without any doubt, the overwhelming theme that emerged from all five groups was that of training and skills. It was thought that the problems identified could be prevented through the teaching and instillation of appropriate skills and most importantly, attitude, at the beginning of a student’s flying experience.

There was a great deal of discussion about culture, values and attitude. Could the difference in our accident rate from overseas countries be explained by typical Kiwi culture – the ‘she’ll be right’ attitude? John Jones had referred to this in his opening address:

“Firstly, aviation attracts people who are goal-seekers and achievers. We have a ‘can do’ attitude. If it needs to be done, then I

can do it. Now! Secondly, ‘it cannot happen to me’. Thirdly, peer influence. I know this is what the old hands do, what my last boss told me to do, what the others do, so this is okay. Finally, there are very persuasive commercial and client pressures. High utilisation and low costs have attractive outcomes – at least in the short term.

“These instincts and drivers can be powerfully positive forces. But they can also be overwhelmingly negative. Are all these things part of a predominant culture that we need to change?”



### What happens next?

A draft Safety Plan will be prepared and distributed to all participants. It will be placed on the web site for input from the whole aviation community, and we’ll highlight the key points in the next magazine. All feedback and further suggestions will be welcome – we want to be sure that we have taken the correct messages from the forum. This should ensure ongoing support and direct involvement of the aviation community in implementing its recommendations.

Any inquiries or feedback about Towards 2005 and the Safety Plan, contact CAA Manager Safety Analysis, Peter Nalder  
Tel: 0-4-560 9424

Email: [nalderp@caa.govt.nz](mailto:nalderp@caa.govt.nz) ■

# MEDICAL MATTERS

Welcome to the first *Medical Matters* page. We intend to make this a regular feature of the magazine, with information that will help you keep fit and keep flying. We will also provide information that will help you (and us) avoid the things that tend to cause delays – note, for instance, the deadlines for processing Special Medical Assessments around Christmas.

This first issue introduces the new Medical Section. We have a new structure, and we are now better resourced than in the past. Besides myself, other new staff are: Senior Medical Officers Dr Pooshan Navathe and Dr Claude Preitner, Aviation Medical Registrar Dr James Harman, and advisers Vanessa Calnon and Dianne Lassche. The ‘old hands’ are advisers Ngaire Roil and Elizabeth Parlakchief, while Executive Officer Judi Te Huia almost qualifies, having been here about six months.

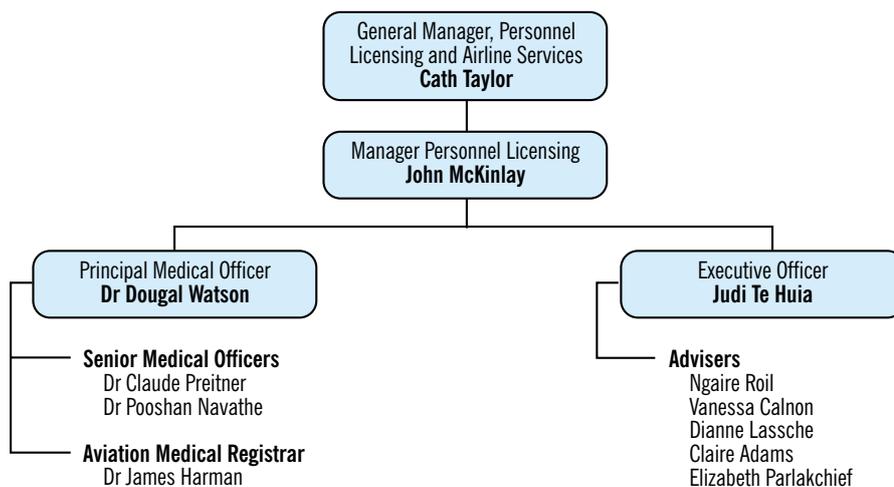
While it’s great to have new people and more staff, I also want to mention the recent retirement of Executive Officer Barbara Handley. Barbara was with the section for 33 years, so she will have dealt with many of you over the years. Her experience will be missed.

That’s all from me. I hope you find *Medical Matters* helpful and, as always, we would appreciate your feedback, including ideas for future issues.

Dougal Watson  
Principal Medical Officer

## Introducing the Medical Section

Here’s part of the CAA structure showing the medical section family tree.



## Is my Medical Certificate valid? ... ... Yes!

The outcome of the recent Judicial Review caused some pilots to question whether their Medical Certificates were valid. While the CAA is satisfied that medical certificates have not been rendered invalid by the decision of the High Court, in order to remove any uncertainty, the Director of Civil Aviation has issued a general exemption (2/EXE/8). General exemptions can be viewed on

our website, [www.caa.govt.nz](http://www.caa.govt.nz), under “Rules & more”.

The exemption applies to every pilot who currently holds a medical certificate issued by the Director or CAA employee, and applies until the expiry date on the medical certificate. The exemption is conditional on compliance with any endorsements on the certificate.

Follow the normal process to renew your medical certificate (remembering to allow plenty of time). Your AMA should be able

to answer any questions. If you have any questions for the CAA medical team, please contact them using the details below.

## Avoid the Christmas Rush!

Christmas is fast approaching, and the medical section want to ensure that there are no delays due to people leaving their applications to the last minute. Each year we get a rush of applications for special medical assessments in late November and December, and some people have to wait until the new year to get their certificates. The best thing is to have your examination and assessment well before the expiry date and, if it is necessary to forward to the medical section for an assessment, send it as soon as possible.

## Special Medical Assessments

People often ask how long it takes to get a special medical assessment done. This is not easy to answer, because ‘specials’ involve difficult medical and aviation safety questions, and the length of time to complete these assessments varies greatly. Our best advice is to allow about 4 to 6 weeks. Remember that special assessments almost always involve getting at least one external consultant’s report, and often further tests and several external reports are needed. Specials are the difficult cases that involve medical issues with flight safety implications, which are often complex. Occasionally, difficult cases take longer than six weeks, but these are exceptions.

In order for a medical certificate to be issued by an AMA following the special medical process, the Director of Civil Aviation will issue an Exemption, which will detail any special conditions.

## Health Articles

Future issues of *Véctor* will contain a regular column on aviation health. If there are topics you would like covered, please forward them by email or letter. ■

### How to contact us:

Tel: 0-4-560 9466  
Fax: 0-4-560 9470  
Email: [med@caa.govt.nz](mailto:med@caa.govt.nz)  
P O Box 31 441  
Lower Hutt

# Increasing Passenger Weights

Surveys have confirmed that we're getting heavier on average, and the standard weight, which has been in use for some time, is now inaccurate. Operators may be affected by a review of Parts 121, 125, and 135, relating to the calculation of passenger weights. Other issues to be considered are standardisation of crew and checked baggage weights, and harmonisation of the rules with other aviation authorities.

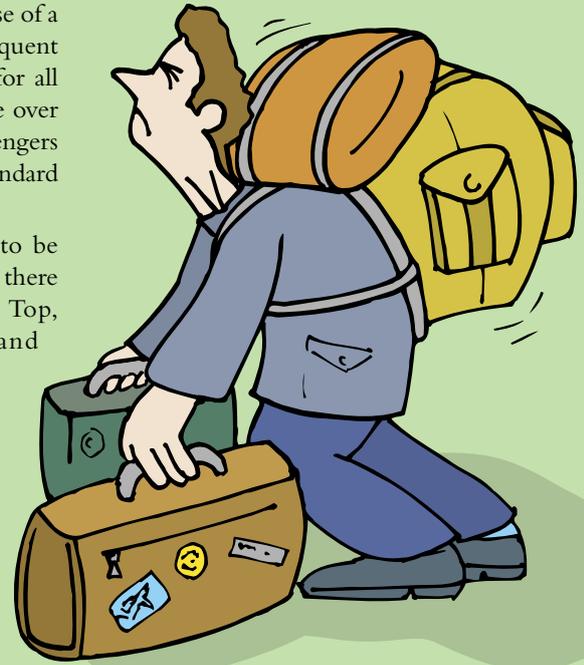
Technical Study Groups (TSG) have been formed to examine these issues and propose amendments to the relevant Rules. The TSG for Part 121 and Part 125 operators has representatives from Origin Pacific, Air New Zealand, NZALPA, and CAA. Their first meeting is to be held in Wellington as we prepare the magazine.

There is a separate TSG for Part 135 operators, which reflects their differing requirements from those of the larger carriers. The Part 135 operators will examine how to implement a more

representative standard passenger weight into the Rule. With fewer passengers, the use of a standard weight is prone to more frequent error. For example, it is more likely for all four passengers on a Cessna 182 to be over the standard weight, than all the passengers on a Boeing 737 to be over the standard weight.

The Part 135 TSG's first meeting is to be held in Timaru late September, and there are representatives from Over the Top, Canterbury Aero Club, Fiordland Experience Group, Air Safaris, and CAA.

The Terms of Reference for this rules development project are on our web site, [www.caa.govt.nz](http://www.caa.govt.nz). The TSGs would welcome input from interested parties. For further information on passenger weights or the TSGs, contact CAA Rules Project Specialist, Bill Wilson, Tel: 0-4-560 9666, Email: [wilsonb@caa.govt.nz](mailto:wilsonb@caa.govt.nz) ■



## Update on Medical Issues

### Ministerial Review of Part 67 and the '1% rule'

The Ministerial Review Team produced a report at the end of July, which has been distributed to all those who made submissions, and other interested parties. Their comments are now being considered by the Review Team.

### Civil Aviation Amendment Bill (No 2)

As we reported in the last *CAA News*, the Civil Aviation Amendment Bill (No 2) has been reported back to the House. The next step will be the second reading. ■

## AIS Levy Update

The Aeronautical Information Service (AIS) levy should be in place in October.

As *CAA News* went to print, the Levy Order had been lodged with the Cabinet Office and was due for signing by the Governor General on 17 September, allowing publication in the *New Zealand Gazette*. That would allow the order to come into effect 28 days later on 18 October.

The levy changes the way the AIS is funded, with the aim of reducing costs to subscribers and increasing the use of it. Those who cause changes to the AIS – CAA, Airways Corporation, Defence, certificated airport companies and MetService – pay the production costs to CAA via an annual specified levy. The end users pay only delivery costs. That means an average drop of 38 percent for AIS products to pilots and operators.

Specific provision has been made in the Levy Order for proportional payment this year (it will be 70 percent of the annual amount if the levy comes into effect on 18 October). All of the levy gathered by the CAA will be paid to Airways, the current AIS provider, to meet the total annual production costs of the AIS in New Zealand.

AIS project leader Bill Sommer says that, with the reduction in prices, already an increasing use of the products has been noted, with three times as many planning manuals as normal being ordered.

"People are starting to take the option, which is really good to see. It's starting to get a positive reception," he says. Use of the AIS will be monitored, with figures generated three-monthly. ■

# Picking Up the Pieces

## — An Inside Look at Safety Investigation



**There are lessons in every aviation incident, no matter how minor. What goes on behind the scenes when the worst happens?**

The crumpled wreckage awaiting an investigator at the scene of a serious air accident might have little apparent value, but it can provide valuable lessons for aviation safety.

Even the smallest incidents can uncover design flaws. The nature of the New Zealand aviation market – with short sectors and frequent takeoffs and landings – means problems may become apparent here well before they do elsewhere. While investigation may find that human error is a factor, the aim of investigation is not to lay blame, but to learn and to prevent future accidents. Investigators are independent from the enforcement unit.

The Transport Accident Investigation Commission (TAIC) used to investigate all fatal accidents, but a legislation change allowed it discretion on what it investigated. After concerns from industry and Coroners that not all fatal accidents were being scrutinised, the CAA stepped forward.

In 2000, the CAA investigated seven of the 10 fatal accidents, and 11 of 15 fatal accidents in 1999.

The CAA has three flight operations and four maintenance safety investigators, with experience ranging from heavy jets to light GA aircraft and helicopters, and one specialist air traffic control investigator. All are assisted by two trainee investigators who will eventually run their own investigations. All are driven by a desire to return something to aviation.

At any one time CAA's investigators will be handling between 50 and 80 incidents. Most of those are minor and resolved in a few hours' work, but fatal accident investigations can take several months to complete.

CAA Safety Investigation Unit Manager Richard White says there are many factors – scientific analysis, consultation with affected parties, overseas manufacturers and aviation agencies among them – that add time before an accident report is published. Attention to detail is critical, and there is pressure from a variety of sources to come up with the answers.

He says the depth of investigation required is the key factor in the delay between an accident occurring and the report being published. Basic information is put on the CAA web site as soon as possible.

Finding the answers is not just important for aviation safety. Grieving relatives, friends and witnesses also need answers. Often they personally thank investigators for the work they do. Any number of people can be directly affected – after the 2000 Lindis Pass crash, Victim Support assisted 72 people.

Accident investigation can be a dirty, unpleasant, stressful and sometimes dangerous job. So what is involved?

An accident investigator is usually met at the scene by police and sometimes the media. Early in the investigation there is little that can be said – initial impressions can change dramatically after a detailed examination.

“Things that seem fairly obvious might be proven wrong after further investigation. Off the cuff remarks could also impact on

somebody's career, and the victim's family's perception of events – especially if it is a fatal accident,” Richard says.

“Any comment needs to stand up to scrutiny. When the accident is fatal and the report will be presented to the Coroner at an inquest, it has to stand up to the scrutiny of experts.”

The search for information begins as soon as the CAA learns of an accident. Anyone notifying a crash will be quizzed for as much detail as possible. That includes the registration and type of aircraft, the type of operation, condition of the wreckage, the number of people on board, and the weather and visibility at the time of the accident. Wind speed and direction can be important. Other information is available on the CAA database.

The scene investigation is the most stressful phase, particularly if the crash involves a high-speed impact. The New Zealand aviation community is small, and investigators may know the victims. Investigators will be dealing with the police and other emergency services, the media, the aircraft owner or operator, witnesses, land owners, insurance, victim support and sometimes the family of those involved. Care must be taken that no-one disturbs vital clues in the wreckage or impact marks.

A crash scene can be a dangerous place. Aircraft can contain radioactive materials – some use depleted uranium as balance weights because it is denser than lead – and its cargo can include hazardous goods. There can be electrical hazards and chemical hazards from fuel, oil, lubricants, batteries and hydraulic fluids. Unstable compressed gases and fire extinguishers can also pose a threat. Easily inhaled glass-fibres and carbon-fibres can also be present. Pathogens from bodily fluids are also a risk, and there can also be environmental factors to consider depending on the crash location. Sometimes investigators may be winched into the site from a helicopter.

The investigator starts with a general inspection of the scene, noting the wreckage layout, any impact marks or broken trees, narrowing down their search to specific items. They are trying to determine what mechanical, human and sometimes medical factors were involved.

Sometimes the police will have surveyed the site to produce a wreckage plan. Talking to witnesses and the operator also forms an important part of the investigation. Some aircraft components may be removed for forensic tests. Pilot logbooks, training information and maintenance records are also examined. Similar accidents on the same aircraft type may be reviewed.

Body position can give vital hints. The Coroners Act requires post-mortem examinations on all deceased in air accidents. This produces more information, establishing a cause of death and developing information to help prevent injury in future accidents.

A post-crash fire or immersion in water can destroy some evidence, but it is still possible to establish a great deal. Impact marks reveal the attitude of the aircraft when it hit the ground.

Damage to the propeller shows whether the engine was developing power at impact. A strip-down of the engine will show how it was performing, and it is possible to determine if fuel was contaminated. Instruments and controls in the cockpit can yield clues. Larger aircraft have a flight data recorder and a cockpit voice recorder – the so-called ‘black boxes’.

Investigation can determine if damage occurred in flight or on impact – crucially important with fatigue cracks on critical components. Some parts may be examined under an electron microscope or subjected to other testing.

Most accidents involve several contributing factors, making attention to detail all the more important. Uncovering the accident chain adds time to the investigation.

CAA investigators were among the first in the world to use the Reason Model of accident causation. The model resembles several stacked plates, each representing a defence against accidents. When an accident occurs, each plate contains a causal factor which shows how a defence was breached.

Investigation theory starts with the individuals involved, tracking backwards to establish the whole environment they were working in.

“You are examining the chain of causal factors, and getting the true underlying picture does take time – the key things are witness interviews, pathology and, if appropriate, forensic testing,” Richard says.

The chain may reach back to areas under the control of company management, or procedures and equipment.

“Most people involved in an accident investigation are very helpful. The onus is on industry people to help

and try to understand the reasons for the accident. Investigators also receive good cooperation from emergency services and witnesses,” he says.

However, investigators do have some help in getting to the bottom of it all, with statutory powers invested by the Authority under section 72(b) of the Civil Aviation Act. They also have delegated powers of the Director under section 24 to uplift documents and enter premises. They can demand right of access to any aircraft, aerodrome, building or place and any document or record concerning any aircraft, aeronautical product or aviation related service and require the owner to surrender it.

The draft report is peer reviewed before consultation with interested parties – manufacturers, operators, and relatives. The parties have 28 days to comment, and changes may be made before final publication.

The bottom line remains the same. Investigation and improved safety can only happen if incidents are reported. Mr White says most accidents are reported – usually by the police, search and rescue or the fire service, though some fall through the cracks. ■



# New Personnel Licensing Manager



For new CAA Personnel Licensing and Aviation Services Group General Manager Cath Taylor, there is nothing quite like working in the aviation industry.

“It’s dynamic. No two days are the same. No two issues are the same. Everyone in aviation is passionate about what they do, and it never stops,” she says.

Cath hasn’t stopped either, with her appointment continuing a long-running involvement in aviation since she started with

Wellington International Airport Limited as Company Secretary and Finance Manager in 1990.

A chartered accountant with degrees in economics and accountancy, she became its General Manager Operations in 1994, responsible for the day-to-day management of the airport, including its property, terminals, regulatory compliance and liaison with the airport community, airlines and government agencies.

She was acting CEO in late 1998 and early 1999 before leaving to provide consultancy advice to Air New Zealand and other airlines. She joined Origin Pacific as Customer Services General Manager in August last year, leaving the airline in March. She was Deputy Chair of the CAA until July this year, having been appointed to the board in August 1997.

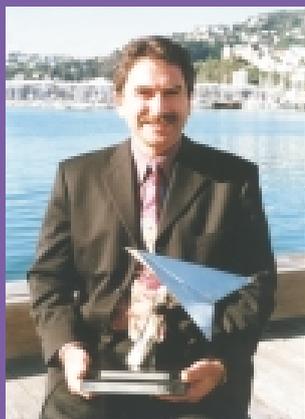
Her new position is responsible for Search and Rescue, personnel licensing, medical services and aviation services, including air traffic control, aerodromes, meteorological services and aviation security. She replaces Robbie Graham, whose replacement was put on hold while awaiting the appointment of the new Director of Civil Aviation.

“I wanted to continue to work in the aviation industry. Parts of the role I have considerable familiarity with, particularly the service provider roles, and I love working with people for win-win solutions,” Cath says.

“This is a challenging position. A key aspect is to continue to develop the relationship-building both inside and outside the CAA. The CAA is moving forward significantly, and that momentum needs to be maintained,” she says. ■

## Flight Planning Contribution Earns

# Director’s Award



Airways Corporation sector manager John McKenzie’s contribution to VFR flight planning has earned him the individual Director’s Aviation Safety Award for 2001.

The Director’s Awards are presented each year to individuals and organisations who recognise that aviation is safe only when

individuals and organisations accept the safety responsibility. Those honoured have gone out of their way to enhance safety.

This year, although the organisation nominations were strong and across the aviation spectrum, it was decided they did not meet the narrow criteria of the award and for only the second time, no organisational award was made.

Mr McKenzie was nominated for his work with general aviation over the last two years, and in particular for progressing VFR flight planning and the creation and introduction of the Internet Flight Information Service [www.ifis.airways.co.nz](http://www.ifis.airways.co.nz). Director Kevin Ward said some excellent nominations were received, and it would have been difficult to pick a second and a third, but Mr McKenzie was an outstanding winner.

“While many in industry were involved in finding a workable solution, without John’s expert advice and experience, and without his personal dedication to ensuring that the new service met everyone’s expectations, the project would not have succeeded.

This outstanding service should significantly enhance flight planning by general aviation and with this, flight safety,” Mr Ward said.

Years of service to aviation safety were recognised with Director’s commendations awarded to former Air New Zealand managers Ian Diamond and Ron Tannock.

Director’s commendations cover conspicuous acts of courage, or conspicuous and outstanding acts or series of acts or service with direct and lasting benefit to aviation safety.

Mr Diamond rose from apprentice electrician to be Group General Manager of Technical Service for Air New Zealand, leading the airline engineering arm through some of its biggest changes. He retired last year, after 47 years in aviation, as Group Technical Adviser to the airline’s chief executive.

Mr Diamond has also contributed outside the airline, with directorships of the New Zealand Aeronautical Trust, Aviation Services Ltd, RNZAF Museum Trust Board, and as a past chairman of the Aviation Travel Industry Training Board.

Mr Tannock began his career in Scotland and retired last year after 40 years in aviation. He held a series of positions, eventually becoming general manager of Safe Air and overseeing its move from flying freight to fixing aircraft.

In 1992 he became Air New Zealand’s General Manager of Operations with oversight of the most comprehensive regulatory change in its history. He controlled aspects of the airline under its Part 119 certificate, controlling safety, operational and service delivery for Air New Zealand’s jet operations and a staff of 2400.

# Collision Avoidance

The CAA has started the rules process for state-of-the-art Terrain Avoidance Warning Systems (TAWS) and Airborne Collision Avoidance Systems (ACAS).

The move will bring New Zealand in line with overseas authorities, but compliance here is already high, with about 57 percent of large aircraft fitted with ACAS – largely due to Air New Zealand flying to compliance-required countries. About 55 percent of medium aircraft will be fitted with both ACAS and TAWS by late 2002, largely because of the purchase of Beech 1900s by Eagle Air.

The projects were put before the CIRAG executive on 23 August after scoping studies were completed and terms of reference for two technical study groups (TSG) developed, giving interested parties the opportunity for input into the rule making process. CAA is aiming to get the rules in place by June 2002 at the latest, with TSG activity expected to be complete by December 2001. It is intended that the Notice of Proposed Rule Making (NPRM) for ACAS and TAWS in Part 121 aircraft will be out for consultation by Christmas.

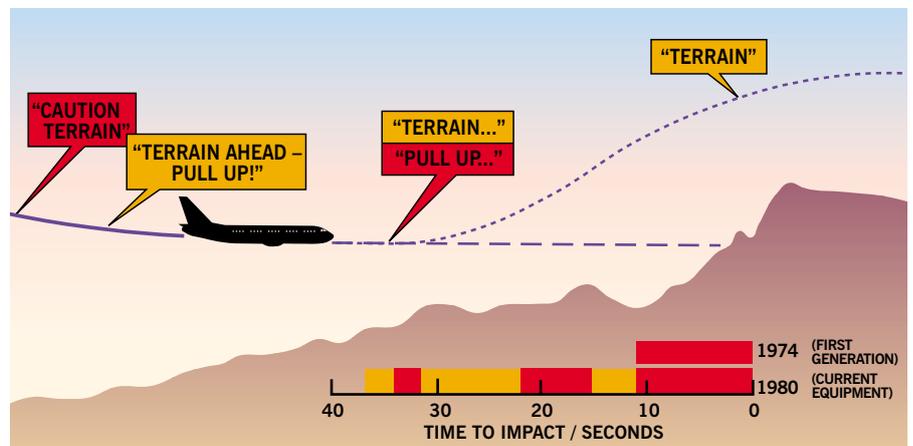
Rules Project Specialist Dave Park says that, while it is proposed the equipment be mandatory for large air transport operations by turbine-powered aircraft under Part 121, applications for smaller Part 125 and Part 135 aircraft will also be looked at after a cost-benefit analysis is carried out. Industry will be consulted before any new rules are put in place.

Dave says the same equipment standard would not necessarily be applied to small aircraft as to airliners, but there are potential benefits in the technology for Part 135 operators that may make it worth considering.

“There could be benefits for VFR sightseeing operators, where there is probably a larger risk of air collision than there is in airliners,” he says.

The new rules will govern the requirements for the latest available Aircraft Collision Avoidance Systems (ACAS) and Terrain Avoidance Warning Systems (TAWS).

ACAS evolved in response to several mid-air collisions between 1950 and 1980. It works by interrogating other airborne Mode C and Mode S transponders in the



vicinity, providing conflict resolution advice if required.

Before ACAS, transponders were used solely to identify aircraft on radar, but because ACAS is particularly effective at reducing collision risk outside radar cover, transponder mandatory (TM) airspace needs to be extended to gain the full safety benefits. Right now, TM airspace only covers areas within radar cover. Dave says it would be desirable for ACAS to have TM airspace protecting all airspace used by IFR transport aircraft, but that must be balanced against the costs and restrictions which could result for other airspace users.

“ACAS is useless if aircraft don’t have transponders switched on to Mode C at all times. ACAS-equipped aircraft regularly operate outside transponder mandatory airspace and should have the benefit of the ACAS system they have paid money to install. Pilots should ensure transponders are turned on at all times,” Dave says.

Ground Proximity Warning System (GPWS) was introduced in the mid 1970s when the world airliner fleet was averaging eight Controlled Flight Into Terrain (CFIT) accidents a year.

Although CFIT accidents decreased dramatically, in 70 percent of crashes GPWS gave no warning, or alerted the crew too late to avert tragedy. New Zealand’s most well-known airliner accidents – Mt Erebus and the Dash 8 crash at Palmerston North – fit this category. CFIT remains the biggest cause of airliner accidents, although about 8000 aircraft worldwide now use some form of GPWS.

GPWS receives data from a downward-

looking radio altimeter, an air data computer, an instrument landing system glideslope signal and flap and gear lever positions, giving visual and aural alerts. TAWS builds on GPWS, displaying a terrain, airport and obstacle database and aircraft position information obtained from on-board GPS or flight management systems in the cockpit to increase pilots’ situational awareness. TAWS also provides additional alerts in the approach and landing phases.

It can warn of descent below safe vertical profiles when landing, eliminating the problem of the original GPWS, which was inhibited during the landing configuration in non-precision approaches at normal rates of descent – the majority of accidents happen in the approach and landing phase and are more likely during non-precision approaches.

ICAO and CASA already have standards for both ACAS and TAWS in larger commercial turbine aircraft, with some already in effect and compliance for others required in the next few years. ICAO is currently proposing extending the TAWS standard to smaller general aviation aircraft and recommends that ACAS II – which allows operation in areas of Reduced Vertical Separation Minimum (RVSM) – be installed in all commercial aircraft.

The project will get some direction from ICAO and CASA standards – it is CAA policy to adopt ICAO standards wherever possible, and New Zealand’s rules need to fit with Australia’s to allow a productive Open Skies agreement.

Input on this issue is welcomed. Contact Dave Park at [parkd@caa.govt.nz](mailto:parkd@caa.govt.nz) ■