

# vector

Heads Up  
**The Cup is  
Coming**



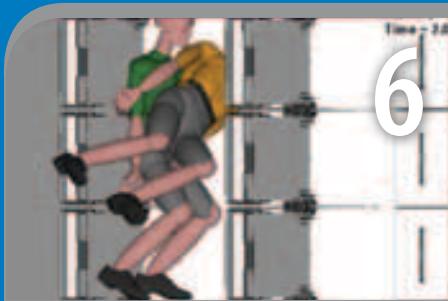
New AFIS at PP  
Déjà What?  
Airspace Incursions



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## New Aerodrome Flight Information Service at PP

There will soon be voices in the tower at Paraparaumu. Find out what the aerodrome's Flight Information Service will do for you, and meet the qualified pilots who will be on the other end of the radio.



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## How the Skycouch got its wings

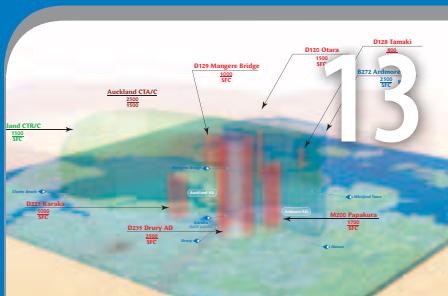
The CAA's aircraft certification unit has approved the world's first aircraft economy couch-style seating. Here's what it took to get approval.



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## Déjà What?

Warning – 'beat-ups' can be hazardous to your health. This article discusses a recent accident, and looks back on some historical examples and some words of wisdom from the late, legendary Paddy O'Brien.



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## Airspace Incursions

In the last year, VFR aircraft flew into controlled airspace without a clearance, or into an active Military Operating Area, 226 times – putting their safety, and the safety of other aircraft in the area, at risk. Here are some tips to help you avoid 'busting' airspace.

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# Heads Up The Cup is Coming

Perhaps 15 per cent more scheduled operations, say 20-odd visiting business jets, a pile of passengers with important dates to keep – throw in some bad weather, and aviation could be under some pressure during the Rugby World Cup 2011.

The solution? From early September to late October, general aviation pilots in particular should ensure they read the *AIP New Zealand*, Rugby World Cup Supplement, keep a close eye on their NOTAMS, and use the Internet Flight Information Service (IFIS).

Airways' Rugby World Cup coordinator, Mark Miller, says New Zealand can expect significantly increased traffic throughout the event, which runs from 9 September to 23 October.

"It is something of an unknown, but Airways is on high alert, and preparations are well under way."

Airways is part of the transport branch of the government-wide Rugby World Cup Operations Centre, which is preparing for the event's impact on New Zealand's infrastructure.

While most of the increased traffic is expected to centre on Auckland and Wellington International Airports, smaller aerodromes will be affected too.

"The increased traffic is not going to be limited to the matches. People will be heading to tourist destinations between games, and afterwards. Also, if we get any periods of significantly bad weather, you might find your quiet regional base has just become an alternate for quite a bit of traffic," Mark says.

The planning aims to minimise the chance of delays.

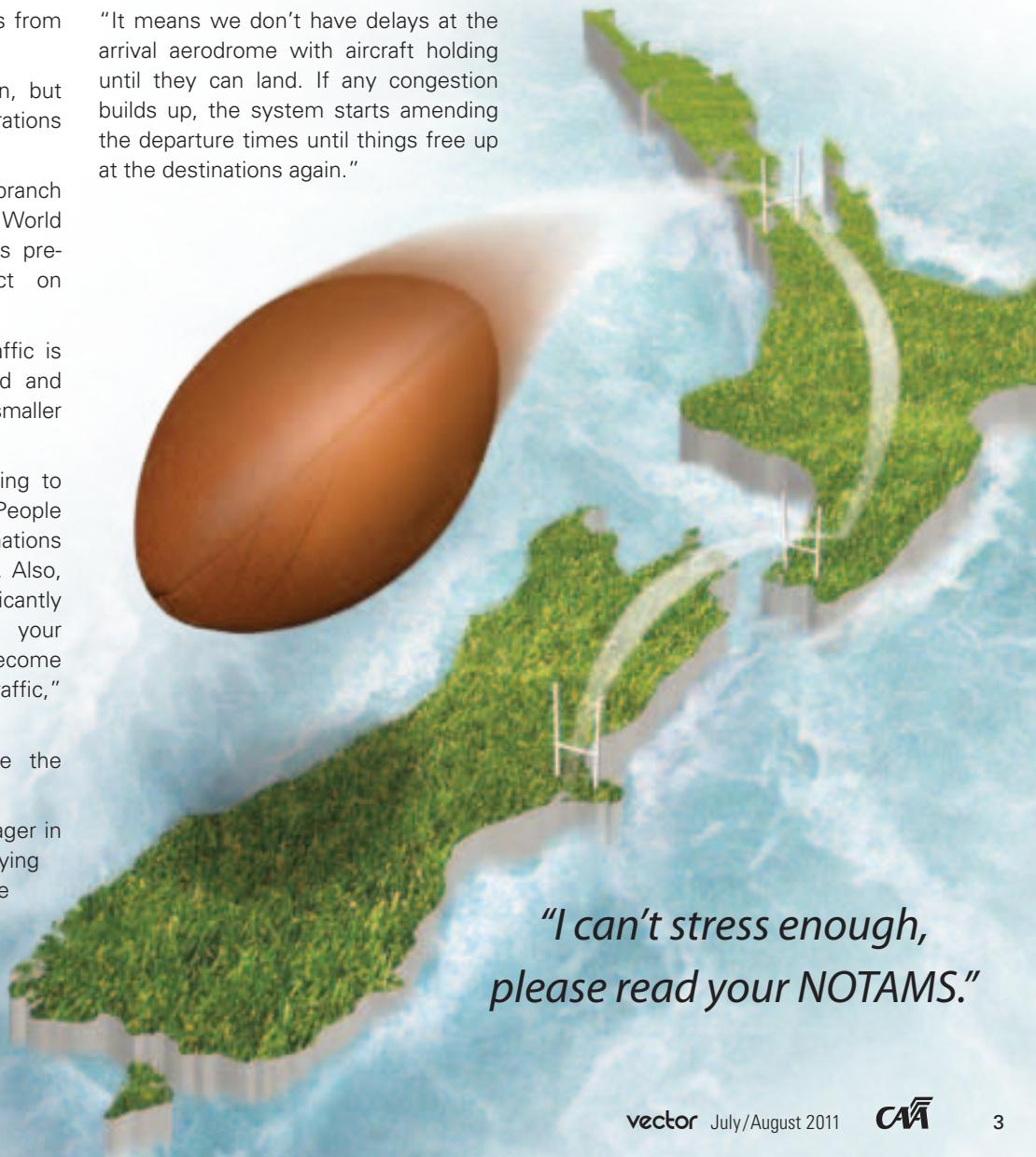
"We'll have a full-time flow manager in place, who's got the job of identifying any potential bottlenecks in the network and keeping the traffic flowing," Mark says.

"At Auckland, Wellington, Christchurch and Queenstown, we'll also have our Collaborative Arrivals Manager (CAM) operating. CAM calculates the number of aircraft each aerodrome can handle, depending on the conditions. Then it creates a time slot for when each aircraft can arrive at its destination aerodrome, and allots the right departure time for the aircraft.

"It means we don't have delays at the arrival aerodrome with aircraft holding until they can land. If any congestion builds up, the system starts amending the departure times until things free up at the destinations again."

Additional equipment spares are being held ready and technical staff will also be on standby.

"We are well prepared, and I'm expecting things to flow well, but the unforeseeable does happen. If anything unexpected crops up, it will be advised by NOTAM. I can't stress enough, please read your NOTAMS." ■



*"I can't stress enough,  
please read your NOTAMS."*

# New Aerodrome Flight Information Service at PP

From the end of July 2011, pilots entering the MBZ at Paraparaumu will get runway in use, weather and traffic information from a real person. Kapiti Coast Airport Ltd has contracted Airways New Zealand to provide an Aerodrome Flight Information Service (AFIS) at the aerodrome during the day.

The service will initially operate seven days a week, from 0800 to 1700; and from mid-October the hours will increase from 0625 to 1955. These hours cover intended Q300 operations into the aerodrome by Air Nelson. Outside these hours, the aerodrome will revert to unattended operations.

An AFIS is not a control tower. Although they sit in the tower, the Flight Service Specialists

who staff an AFIS do not give instructions to aircraft. Like the Flight Information Officers (FIOs) who staff the Area Flight Information Service, specialists give information to aircraft, and also pass on instructions on behalf of Air Traffic Control. They differ from FIOs mainly in that their training is specifically geared to the aerodrome they service. Airways Regional Manager Commercial Bruce Rosie says currently there is only one other AFIS operating – at Milford Sound.



*The guys don't use radar; they use your position report.*

"There used to be a network of these services at regional aerodromes around the country, but most were closed down, or became controlled towers. Interestingly, Paraparaumu was one of the last ones to close."

Bruce has been responsible for setting up the new service at Paraparaumu in the aerodrome's 1940s heritage-listed tower.

"Although it's not a control tower, we are kitting it out identically, with all of the same gear," Bruce says.

The AFIS will be staffed by four specialists, who all hold Commercial Pilot Licences, and are local to the greater Wellington region. They have been trained at Paraparaumu, including four weeks in the mobile simulator on the aerodrome. Although it is a solo-watch role, initially there may be more than one voice in the tower as the specialists build their experience.

"For pilots, some things won't change. The Kapiti MBZ will remain in place, and it is likely that the Aerodrome Weather Information Broadcast (AWIB) will also continue to operate. What will be different is that when a pilot enters the MBZ with their position and intentions, they will hear back from a specialist who will let them know which runway is in use, give them the weather and QNH, and advise of any other relevant traffic.

"Pilots are not required to use the runway in use, but if they elect to use another runway, they must give way to existing circuit traffic."

Although the specialists do not give instructions, they do pass on clearances to IFR traffic from Wellington Control.

"Their job is to look out the window, and maintain the bigger picture of what's happening at the aerodrome. They will make safety suggestions from time to time," Bruce says.

You can help the service by being highly accurate when making position and intention reports.

"The information the team can give pilots is only ever going to be as accurate as the information they are getting in.

The guys don't use the radar; they use your position report.

Phrases like 'abeam Kapiti Island' are pretty meaningless really. Try and say you are '1 NM south of Kapiti Island' for example. That will help us give accurate information to the next aircraft coming in," Bruce says.

An attended aerodrome fee will apply to all aircraft landing at Paraparaumu from Labour weekend (late October).



## Meet Paraparaumu's Flight Service Specialists

### Nicolla Johnston

Nicolla Johnston started flying at 14, eventually gaining her CPL at Otago Aero Club. She completed her multi-engine instrument rating and C-category instructor rating at Canterbury's International Aviation Academy, and instructed at Wellington aero club for two and a half years before spending four years as a Flight Data Assistant in the Wellington Tower.

She has 1200 hours and while she'd like to complete her B-category instructor rating as a personal challenge, she says her two young boys are challenge enough at the moment.

### Simon Wright

Simon Wright learned to fly at Paraparaumu in the late 1970s. He now holds a European JAA ATPL and a New Zealand CPL and has over 10,500 hours, including 5000 on the BAe 146. He is a UK-qualified airline instructor and check pilot, and former Chief Pilot for an Irish airline, which operated two 146 aircraft with 8 pilots. Most recently, Simon spent nine months as Chief Pilot for regional operator air2there. He says he's enjoying returning to the Kapiti region after 20 years overseas.

"This is where I want my kids to grow up, and I'm looking forward to relaxing out at Waikanae."

Simon also runs a web design company, and a simulator-based consultancy teaching multi-crew cooperation.

### Dave Hoyer

Dave Hoyer has been flying since 2003 and has just under 1300 hours. He holds a B-category instructor rating, multi-engine instrument rating, and is qualified to teach aerobatics, instrument flying, and night flying. He has been instructing both full and part time over the past eight years – all in the Kapiti region.

"I've done almost all of my flying at Kapiti, and I know a lot of people here. It can get really busy at times here, and while we might have some growing pains to begin with, I think having an AFIS here will be a great benefit."

### Liam Mackle

Liam Mackle has recently qualified as a CPL. He trained with Kapiti Aero Club and says he's very fortunate to now be working as a Flight Service Specialist.

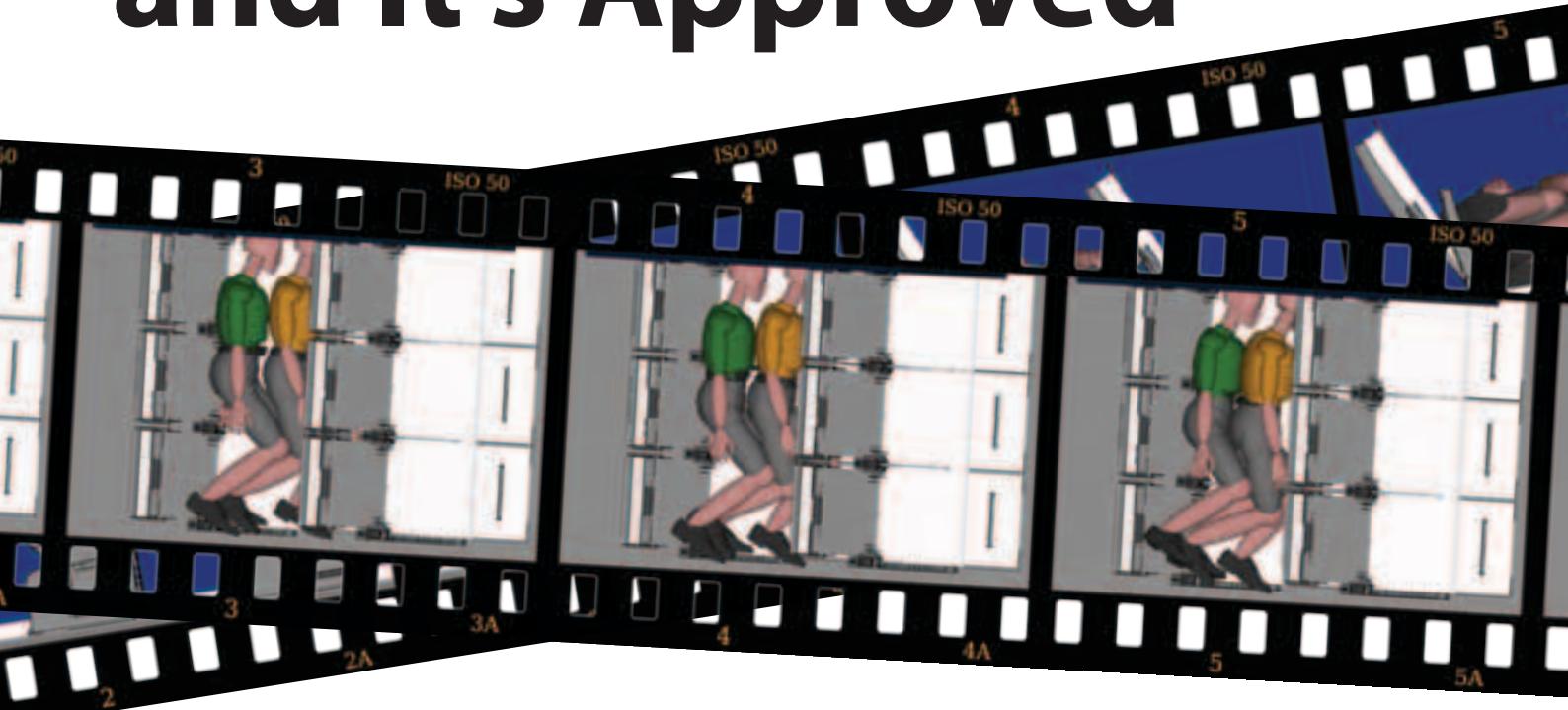
"I am enjoying the opportunity to see what happens on the other side of aviation."

He says the team can fully understand that pilots may take a while to adjust to the new service at Paraparaumu.

"I'm a more recent CPL, so I certainly understand what it's like to begin at something." ■

Meet the voices at the other end of the radio at Paraparaumu aerodrome – Nicolla Johnston, Simon Wright, Dave Hoyer and Liam Mackle.

# It's a World First, and It's Approved



## How the **Skycouch** Got its Wings

Arms flail, skulls crash into headrests and internal organs get crushed against lap belts – the life of a computerised crash test dummy is a hard one.

The CAA has given approval to Air New Zealand's Skycouch, currently operating on board three Boeing 777-319ER aircraft, with another two still to be delivered. The seating configuration is a world first, and one of the most significant approval projects undertaken by the CAA's Aircraft Certification Unit.

The couch is essentially three economy aircraft seats in a row, with a footrest that can be moved into the horizontal position and armrests that lift up out of the way.

Airworthiness Engineer, Beth Coughlan, was part of the certification team, steering the project through its most dynamic stages.

"There was nothing like this anywhere in the world. In aircraft certification, every bolt, split pin, piece of fabric, and bit of space is listed, measured, tested and has to be approved. So although

it might sound like all you are doing is adding some footrests, the safety certification implications of a modification like this are massive," Beth says.

"Before we could approve it, we needed absolute proof that passengers using the Skycouch would be safe, and some of the results were quite surprising."

As part of the analysis, Air New Zealand's contractors used computer modelling to measure what would happen to people using the Skycouch if the aircraft was suddenly subjected to unusual extreme forces.

"Using gust data collected since 2006 from the 777-200, the computer was programmed with the worst forces that any of these aircraft had faced in the past few years from turbulence and sudden manoeuvres. Then other parameters like the size of the seats, the strength of the seat belts, the squishiness of the seat cushion and the stiffness of the dummies were added in.

"They then hit the 'go' button and recorded what happened to the virtual dummies as forces in all possible

directions were applied, including extreme forces," Beth says.

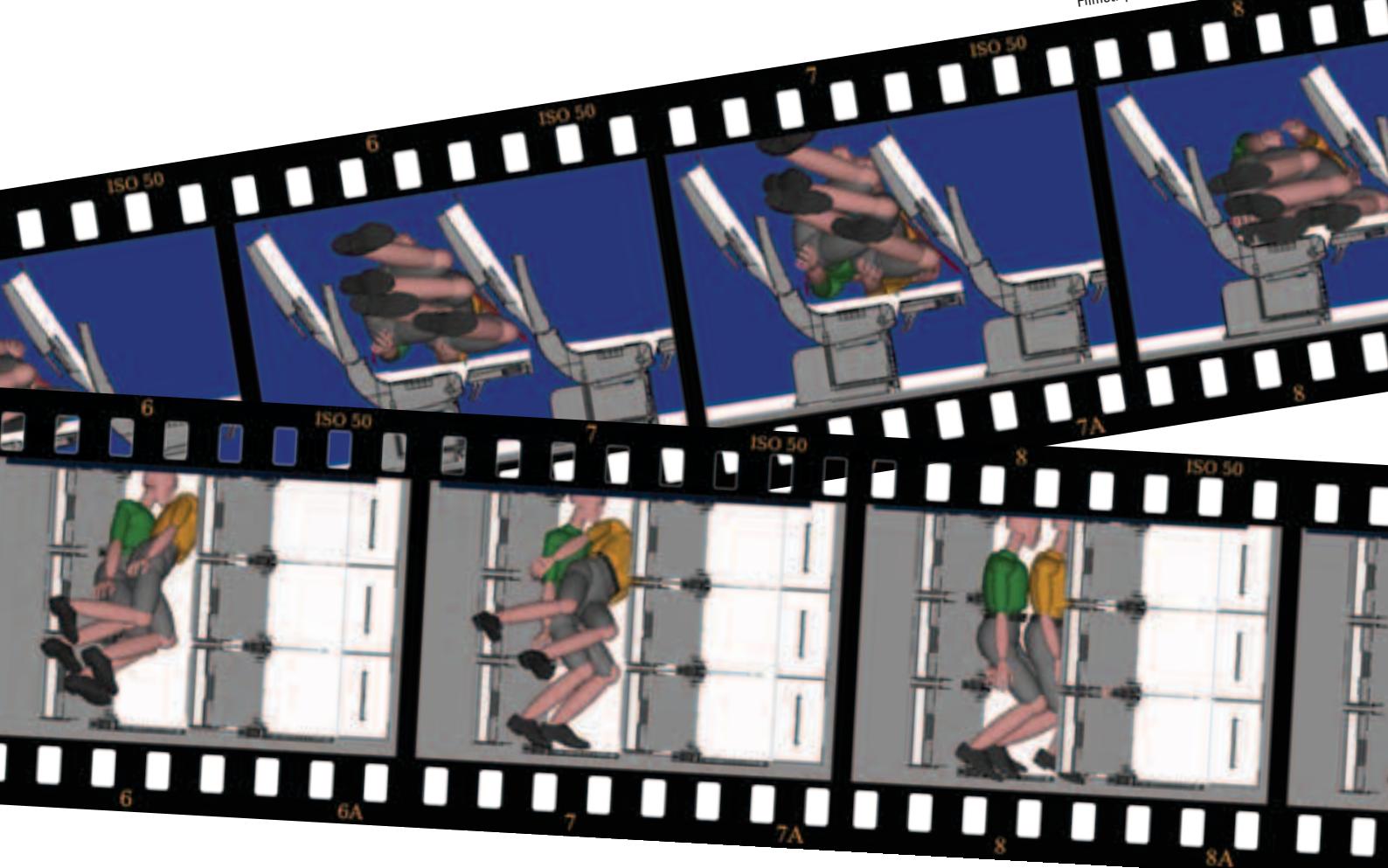
"The results showed whether people's arms or legs would flail up and hit each other in the face, and whether there would be head impact injuries, neck or spine compressions or flexions, and pelvis injuries. Then all of this was repeated with the different combinations of dummies in all of the possible positions on the Skycouch.

"Interestingly, what the testing showed is that the Skycouch is just as safe as a conventional aircraft seat, and in fact when lying down, it is noticeably more safe in turbulence," Beth says.

"It also comes with a new choice of seatbelts to use in cruise, which let passengers safely lie down and recline on the couch."

The Skycouch started its life as just one of a range of brainstormed possibilities aimed at changing the way people travel in economy class.

"Air New Zealand is a unique airline in that its base location on the globe really allows only long-distance international



travel; so they have strived to push the boundaries and have done something unique," Beth says.

The idea sprang from concept meetings, and was eventually mocked up in Air New Zealand's research facility 'Hangar 9'.

"In the early stages, people were invited to come into the hangar to experience a mock flight. They spent a few hours on the Skycouch watching a movie and having something to eat, just to see how people would tend to use the space; and to show up any flaws with the design."

Later, the prototype was fitted to an aircraft, and the CAA carried out a practical walk-through compliance inspection.

"The object of that exercise is to test drive the space, looking for any possible problem with the design – could fingers get pinched in the footrest mechanisms, could you jam a limb anywhere, could you still reach the oxygen mask when lying down, and still see the aircraft signage properly?"

"If you are flying with a two-year-old, would the footrests be strong enough to take the applied forces of someone

enthusiastically jumping up and down on them, but then not stick when lowered to reach the lifejackets – that sort of thing," Beth says.

As well as practical analysis, Beth and the team, including members of the CAA's Flight Operations Unit, pored over the many technical data reports required of Air New Zealand. A design summary report detailed the structure and loadings of the new configuration, and a compliance report detailed how the Skycouch would comply with the Civil Aviation rules for airliners including the special conditions for this novel design. The structural substantiation report proved that each component was structurally strong enough for the expected loads, while an occupant safety report gave the computer modelling data, and looked at any risks of finger pinch, limb entrapment or other possible injuries to passengers. Installation instructions were written for engineers, and a supplement to the aircraft's maintenance manual had to be written and approved. A revised layout of passenger accommodations was approved, including drawings

highlighting where the extra seatbelts for the Skycouch would be stored.

"There was a lot of detail to review, and to ensure absolute technical accuracy, the CAA's work was peer reviewed by a cabin safety specialist from Europe," Beth says.

Initially, the CAA issued Air New Zealand with a modification approval for the Skycouch, with conditions including the requirement that the airline report back on each flight.

"Over the last few months, we've been able to gather a history of the new configuration – things like whether the cabin crew can cope with the increased workload, whether there have been any injuries, and whether passengers are complying with the rules on which seat belt they must wear in the various positions on the Skycouch, and ensuring their limbs don't protrude into the aisle," Beth says.

"Gathering this history has provided good data, and together with all of the careful technical work that's been done, we are able to confidently issue Air New Zealand with full approval to operate the Skycouch configuration." ■

# Déjà What?

It is often said that there are no new aircraft accidents, and a recently-released report on an accident investigated by the CAA tends to reinforce that view.



It should have been a straightforward flight for the 180-hour private pilot, repositioning the company Cessna 206 to home base, some 50 nautical miles distant. The weather was good, there were no passengers or freight to worry about, and the aeroplane had been running well on the earlier flight into the private strip.

Before departure, the pilot had been dropped off at the aircraft by a colleague, who, on his way out from the strip, stopped his van on the adjacent access track to watch the departure. He was accompanied by his nine-year-old son, and they were positioned roughly in line with the takeoff path, about 450 metres from the start point.

The aeroplane lifted off after a ground roll of about 180 metres, but instead of climbing away normally, levelled off about 10 feet above the ground and accelerated towards the van. The pilot performed a 'rolling pull-up' as he neared the van, and during the manoeuvre, the right wingtip struck the front of the van.

The outer portion of the wing, with the entire aileron, separated at impact, and the aircraft struck the ground and came to rest inverted about 65 metres further on. An intense fire erupted, and consumed the fuselage centre section. The pilot died, but the occupants of the van were uninjured.

Definitely not a new accident! This one has all the hallmarks of a 'beat-up', a term commonly used to describe a low, fast fly-by. In this, and numerous other similar instances,

the manoeuvre went tragically wrong, and the only 'fortunate' aspect of this accident is that the two people in the van were not killed or injured.

We can safely assume that the pilot did not set out to have an accident, and it appears that the manoeuvre was the result of a 'spur-of-the-moment' decision. In this, the pilot is not alone – the accident files are well-populated with variations on the same theme. Military, civil, experienced, novice – all types of pilot (except, notably, female) are represented. Take, for instance, two accidents from the 1960s, both involving instructors.

In one, an instructor and student were taking off in a Piper Cub from a satellite airfield to return to home base. Shortly after takeoff, the instructor took control and rolled the aircraft abruptly into a near-vertical bank, with the apparent intention of flying over the clubhouse at low level. The aircraft stalled in the turn with insufficient height for recovery, and struck the ground. The instructor was killed but the student survived.

The second example also involved a Piper Cub, which was approaching to land at the end of a dual lesson. The student was flying, but on short final, the instructor took over, applied power to go around, and rolled into a turn towards a building on the aerodrome. One wing clipped a 28-foot high refuelling boom, resulting in loss of control and a severe ground impact in which the instructor died. The student was able to escape unaided, but not unscathed, from the burning wreckage.



Then there are the premeditated 'beat-ups', these from the 1990s. A student pilot was authorised by his instructor for a solo period of basic aerobatics to the southeast of the aerodrome. He had, however, arranged to fly over a friend's house, some 17 miles to the north. During a steep turn at treetop height, the aircraft 'flicked' into a spin and struck the ground, killing the pilot.

Only 10 months later, a private pilot offered to take a friend for a flight over her house, and while doing so, indulged in a prolonged period of dangerous low flying, which included pull-ups over shelter belts and rapid descents into the orchards beyond. Stall, flick, spin, crash, die. This atrocity was committed in full view of the passenger's family.

What can we say? We'll leave it to the late O J "Paddy" O'Brien, Chief Inspector of Air Accidents, who made these observations in a 1963 report on a similar event:

"While the direct cause of the accident is fully clear, it is less easy to understand why a pilot of mature years and flying experience and with business and family responsibilities should indulge in such a foolish exhibition of low flying. Exactly the same thing may be said of a pilot involved in a similar type of accident three months previously when three people were killed. Both these entirely unnecessary tragedies occurred virtually within full view of the wives and families of those involved."

"It is difficult to offer any new observation on this subject for, again and again, pilots have been warned of the hazards associated with unauthorised low flying. It would, however, appear that an almost irresistible urge to indulge in exhibitionism still persists among some pilots despite their age, experience, and their full knowledge of what has happened to a good many others similarly inclined in the past. The first lesson to be learned from accidents of this nature is that the most rigid self-discipline must invariably be practised by every pilot regardless of the amount of flying he may have done or of the proficiency he may believe he has attained. In any event, unauthorised low flying is an offence under the law and those who are caught must inevitably suffer the consequences. This kind of accident must not be allowed to recur and flying club executives are therefore urged to keep a close watch on the flying activities of those who hire their aircraft to ensure that no breaches of the Civil Aviation Regulations occur. They should not hesitate to take drastic punitive action against any club member, regardless of status or experience, who spoils flying for others by jeopardising the safety of human lives and property. Only too often in the past has completely unwarranted and dangerous low flying resulted in tragedy by taking the lives of wholly innocent people and causing hardship and distress to dependants. It is high time this was appreciated widely and to the full."

Although one or two references may have changed over the last 48 years, the sentiments expressed certainly have not. ■



# Emergency Landings

We won't sugar-coat it – if you fly long enough, you will probably have to make an emergency landing one day – particularly if you fly single piston-engine aircraft on private operations. The more options you have, however, the better your chances of carrying out a successful emergency landing.

If you didn't make it to an AvKiwi Safety Seminar this year, here are a few things to remember. An emergency landing is one you weren't planning to make. You have no choice, you are landing whether you want to or not, and often somewhere that is not ideal. Engine problems, control problems, propulsion problems, fire, fuel, weather, people problems, lack of daylight, or poor decision-making, can all make a forced or precautionary landing necessary. Half of all engine failure occurrences are as a result of non-mechanical issues that were directly influenced by the pilot.

## Be Prepared

Proper preflight planning and preparation can give you more options if something goes wrong in flight. Most problems leading to emergency landings occur in the cruise, so plan your route to fly over areas with suitable diversion or forced landing options. If there is no way to detour around inhospitable terrain or large bodies of water, think about what precautions you can take. Can you fly high enough to glide to a clear area, or to the coast if you're over water?

Think ahead, so you have a plan for the most common emergency situations. A takeoff brief is a good place to start. Carry one out on every takeoff. State the type of takeoff you are making, what the wind is doing, the density altitude conditions, and any other considerations such as runway surface condition, birds or traffic. Consider your intentions after takeoff (what altitude you will climb to, where you will track, and who you will

need to talk to on the radio). Finally, think about what actions you will take in the event of an engine failure or communications failure.

Have the right mindset: an engine failure could happen at any time, so continually look for options. Say to yourself as you fly along, "if it happened now, where would I go?"

If it does happen, accept it and get on with planning the best landing possible. If you experience a partial engine failure, never count on the power level you currently have to make it to a landing area. Choose a spot that you could reach if the engine stopped right then.

The survival of you and your passengers is the top priority, the state of the aircraft is secondary. It is okay to sacrifice the aircraft to save yourself.

## The ABCs of Emergency Landings

This does not replace Aviate – Navigate – Communicate. It is a useful way of prioritising your actions, specifically in the event of a forced landing.

**A** is for Aviate – keep flying the aircraft, at all times, all the way to the ground.

**B** is for Best Speeds – Know the best glide speed for your aircraft's MAUW and 'standard' weight. Make sure you trim the aircraft to maintain this speed.

**C** is for Choose the best possible landing site – It doesn't need to be perfect.

When choosing a landing site, remember all the Ss. Size, shape, surface, slope, surrounds, sun, stock, sand/surf.

Pilots instinctively look for something rectangular to land on, but an irregular shaped area will give you options if you end up high or low. Remember that powerlines usually take the shortest line between houses and nearby settlements. To mitigate sun on finals, consider a crosswind landing.

## If You Have Time

Many pilots who have experienced an engine failure say they only had time to make a decision and fly the aircraft to the ground. If they had attempted to do anything else, even for a second, they may not have made it.

Your most important task, and the only one that really matters in the end, is to fly the aircraft, all the way to the ground. If you have time you can troubleshoot the causes, make a MAYDAY call, switch your transponder to 7700, and activate your ELT and tracking system (if fitted). If in doubt, however, just fly the aircraft. It is a good idea to teach passengers who fly with you regularly to do things for you, such as spotting traffic and suggesting suitable forced landing options along the way.

Brief your passengers on the use of emergency equipment, and how to vacate the aircraft, etc, on the ground before takeoff. In all likelihood you will not have time to do this once an emergency situation develops. The same goes for securing the cabin – do it before you take off. You are still responsible for briefing your passengers in an emergency, but if you are limited by time, you can simply state what is happening and what you require of them.

## Engine Failure After Takeoff

Pick somewhere ahead to land. Do not turn back unless you have received training in that aircraft type on turn-backs, you know the minimum height required to make the turn given the conditions on the day, and you have included this in your takeoff brief. Unless all these conditions are met, it is normally safer to pick somewhere ahead to land. At an unfamiliar aerodrome, assess the surroundings of the field on your flight in, with this in mind.

A sterile cockpit during takeoff and landing (meaning no chatter about anything unrelated to the operation of the aircraft) will ensure that you are ready to react and carryout your pre-briefed plan, should an emergency situation occur.

## Practise Often

Your chances of pulling off a successful emergency landing without damaging yourself or the aircraft significantly increase if you are current. New Zealand pilots who had flown 10 or more hours

in the last 90 days carried out forced landings with no damage to the aircraft in 60 percent of cases. Those with less than 10 hours incurred substantial damage in 75 percent of emergency landings.

Practise forced and precautionary landings often, in an area where it is both safe and legal to do so. Under rule 91.311 (a) *Minimum heights for VFR flights*, you must not fly VFR less than 500 feet above any structures and persons. You must also maintain a horizontal radius distance of 150 metres. Think of this as a virtual cylinder or no-fly zone around each structure and person.

## Survival

In order to survive after the aircraft comes to a stop, you need to be prepared. You may need to deal with ditching, a fire, the environment, and injuries sustained in the crash. A valuable source of information to help you prepare for these scenarios is the *Survival GAP* booklet – email info@caa.govt.nz for a copy.

## Thank You

This year's AvKiwi series involved 29 seminars from Invercargill to Kerikeri. In total, 2051 aviators attended, which is a fantastic result given that we started our South Island seminars just 14 days after the February 22 earthquake in Christchurch. We would like to say a big thank you to all the training organisations, clubs and flying schools who support the seminars. Each year the feedback is more and more encouraging, and it seems you can't wait for us to come back again next year. ■

# What is Meteorological Information?

METARs, SIGMETs, TAFs, and ARFORs are the terms that come to mind. They're only the tip of the iceberg, though.

**M**eteorological Information means any meteorological report, analysis, or forecast in support of aviation, and any other statement in support of aviation relating to existing or expected meteorological conditions, according to Civil Aviation Rules, Part 1 *Definitions*.

This means that Meteorological Information includes the following weather products:

<b>AD QNH</b> (Aerodrome maximum and minimum QNH values)	<b>SATPIX</b> (Weather Satellite Picture)
<b>AIREP</b> and <b>AIREP Special</b> (Aircraft Reports)	<b>SIGMET</b> (Warning of weather phenomena hazardous to aviation)
<b>ARFOR</b> (Area Forecast)	Surface weather charts ( <b>MSL ANAL</b> and <b>MSL PROG</b> – Mean Sea Level Analysis and Mean Sea Level Prognosis)
<b>AV SIT</b> (Aviation Situation Statement)	<b>TAF</b> (Terminal Aerodrome Forecast) and AMD TAF (Amended TAF))
<b>ATIS</b> (Aerodrome Terminal Information Service)	Takeoff and Landing Reports
<b>AWS</b> (Automatic Weather Station Report)	<b>TREND</b> (A TREND forecast consists of an aviation weather report (METAR or SPECI) to which is appended a concise statement of any significant changes to those described in the report that are expected to occur during the following two hours.)
<b>BWR</b> (Basic Weather Report)	<b>VAA</b> (Volcanic Ash Advisory)
<b>High (Hi) Level SIGWX</b> (Significant Weather, FL250-FL630)	<b>Wind and Temperature forecast charts</b> (winds and temperatures aloft)
<b>Medium or Mid-Level SIGWX</b> (Significant Weather, FL100 to FL250)	<b>VOLMET</b> (Routine broadcasts of selected Operational Meteorological (OPMET) information)
<b>METAR</b> and <b>SPECI</b> (Meteorological Aerodrome Report and Special Aerodrome Report)	
<b>METAR AUTO</b> (Aerodrome reports provided from Automatic Weather Stations in the METAR code)	
<b>PIREP</b> (Pilot Report)	
<b>RAPIC</b> (Weather Radar Imagery)	
<b>ROFOR</b> (Route Forecast)	

Meteorological information is an essential tool for all pilots. As part of their preflight action (rule 91.217 *Preflight Action*), pilots are required to obtain and become familiar with all information concerning that flight – this includes meteorological information.

The term Meteorological Information is also referred to in other Parts of the Civil Aviation Rules, such as Part 121 *Air Operations – Large Aeroplanes*, Part 125 *Air Operations – Medium Aeroplanes* and Part 135 *Air Operations – Helicopters and Small Aeroplanes*. Go to the CAA web site, [www.caa.govt.nz](http://www.caa.govt.nz), "Rules" to view the complete rules.

The CAA web site has a comprehensive Meteorology section – the link is on the home page. It includes a specific page on what meteorological information pilots should use, and during what phases of flight, see "Meteorology – Weather Information for Your Flight".



The CAA also has a number of weather-related products, such as the VFR Met Minima card, VFR Met booklet, Weather Card, Met Info poster and the New Zealand Cloud Types poster. Email: [info@caa.govt.nz](mailto:info@caa.govt.nz) for a free copy. ■

# Airspace Incursions

In the last year, VFR aircraft flew into controlled airspace without a clearance, or into an active Military Operating Area, 226 times – putting their safety, and the safety of other aircraft in the area, at risk.

Controlled and special use airspace exists to provide a known air traffic environment, in order to facilitate safe air traffic management. As a VFR pilot, there are a number of simple things you can do to avoid busting airspace.

Before your flight, study the chart for the area you will be flying in, or the route you will be flying along, and try to build a mental picture of where controlled airspace is. While in the air, maintain situational awareness of where you are in relation to controlled airspace around or above you. Even if you know exactly where you are in terms of navigation, refer to the chart in flight to confirm the exact height and boundaries of controlled airspace near you.

When requesting controlled VFR through a control area (CTA), or entry into a control zone (CTR), call the appropriate Air Traffic Control unit early – before you reach the boundary of controlled airspace. ATC frequencies can be very busy at certain times of the day. Don't put yourself in a position where you will

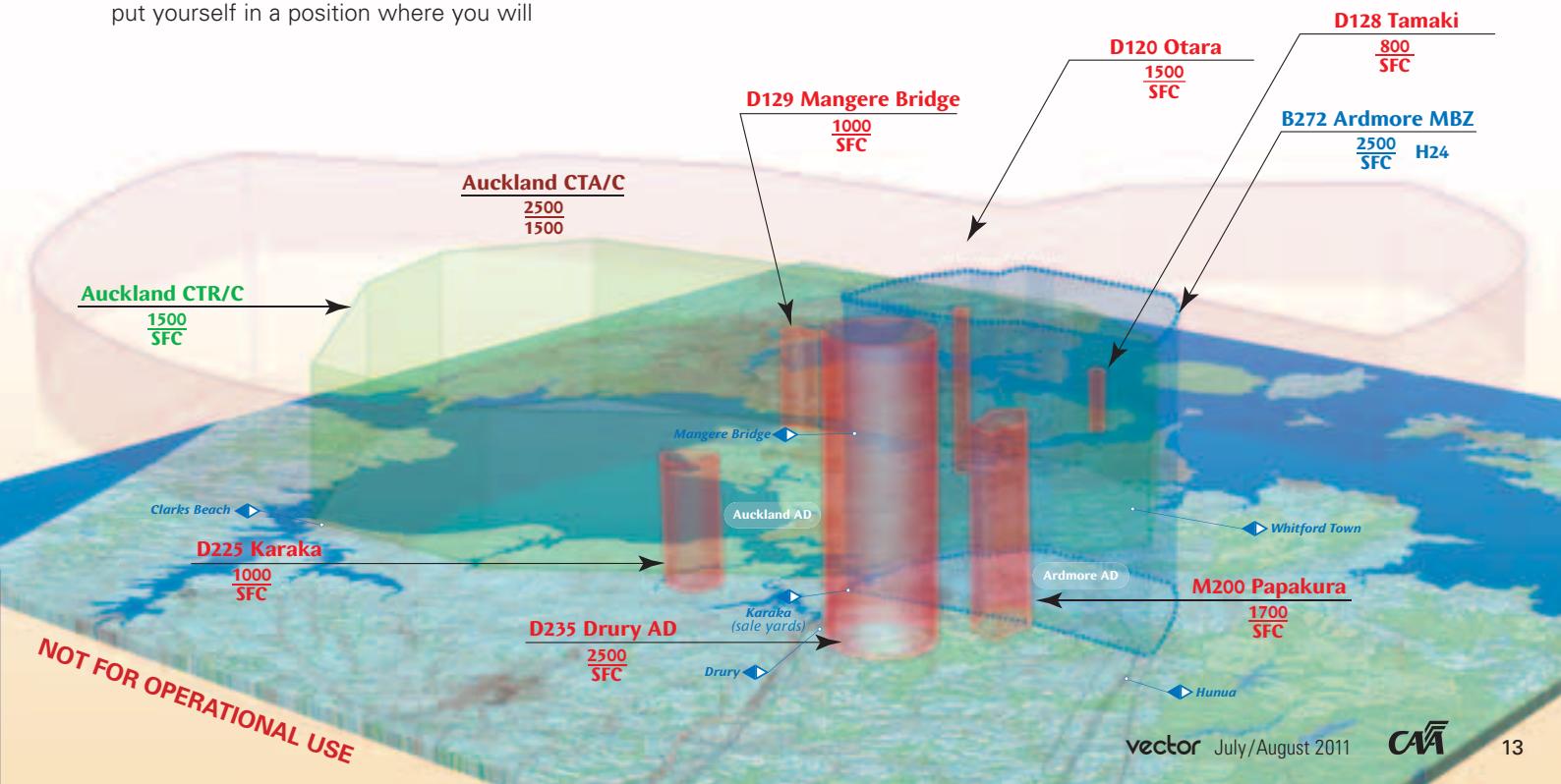
infringe their airspace if you can't get a radio call in straight away, or if ATC cannot accommodate you immediately. To help ATC identify you, make sure your transponder is on ALT (modes A and C), give your individual squawk code (if allocated), and clearly state your position and intentions. Be mentally prepared to hold, or change your route to avoid controlled airspace. Do not continue if a clearance is not available.

While in controlled airspace, follow your clearance exactly. This means accurately flying the track and altitude you have been cleared for. If you need to deviate from this due to weather, for example, you must ask first. Try to anticipate this, and ask early, well before the moment it will become necessary to change course or altitude. You must also maintain a good listening watch on the appropriate frequency at all times, just in case the controller needs you to change track or altitude, or leave controlled airspace entirely.

Before every flight, it is also essential to read current NOTAMs and *AIP Supplements* for the areas you will be operating in. If any special use airspace, such as Military Operating Areas, Danger Areas, or Restricted Areas, are NOTAMed active, identify where they are on your chart, and how you will adjust your planned route to avoid them.

Airspace incursions happen all over New Zealand. Airways report all incursions to the CAA, but as pilot in command, you also have a responsibility to report any airspace incursions you are involved in. The CAA is initiating a project to analyse airspace incursions. It will look for causes, and actions that could be taken to reduce incursions such as amending airspace dimensions or the location of reporting points, and education for local airspace users. The following examples from around the country were reported to the CAA in the last year.

*Continued over >*



## The distribution of airspace incursions reported to the CAA from 1 June 2010 to 14 June 2011.

### Auckland CTAs, CTR/C, and Whenuapai CTR/D

An aircraft entered the AA CTR/C without a clearance while avoiding cloud. The aircraft flew across the final approach track in proximity to an Air New Zealand 737, then vacated the zone to Ardmore.

A glider was cleared to operate in controlled airspace, and instructed to contact Auckland Control on 124.3 MHz, but failed to do so. The aircraft then disappeared from radar coverage, requiring a large amount of airspace to be sanitised until the glider's position could be established.

### Hamilton CTAs and CTR/D

An unidentified light aircraft transited the CTR, east to west at 1200 feet, without a clearance, in the vicinity of the northern transit lane. The Tower attempted to make contact without success.

A pilot encountered turbulence at 2500 feet and decided to climb to 3000 feet, infringing controlled airspace.

An unknown aircraft entered controlled airspace without a clearance and conflicted with an Eagle Airways B1900D on the NDB/DME Approach for Runway 18.

35

### New Plymouth CTAs and CTR/D

#### MOAs



A helicopter entered NZM306 when it was active after being advised to remain clear. Military aircraft conducting aerobatics had to be stopped until the aircraft was clear.

An aircraft entered NZM301 without a clearance while live field firing was taking place.

A VFR aircraft was observed transiting NZM106 during a bombing practice operation.

### Wellington CTAs and CTR/C

An aircraft was being radar monitored by Wellington Control while transiting Cook Strait, but it continued to track through the control zone without a clearance. Control attempted to contact the aircraft several times prior to it reaching the boundary of controlled airspace, in order to ascertain the pilot's intentions. All attempts were unsuccessful.

4

### Nelson CTAs and CTR/D

An aircraft entered the CTR from the west without a clearance. Contact was made with the aircraft at Coringa, and it was instructed to leave the CTR to West Melton.

24

### Queenstown CTAs and CTR/D

A pilot reported that an unknown aircraft was conducting top dressing in the vicinity of the Soho River. Queenstown Tower had not cleared any aircraft to operate in this area.

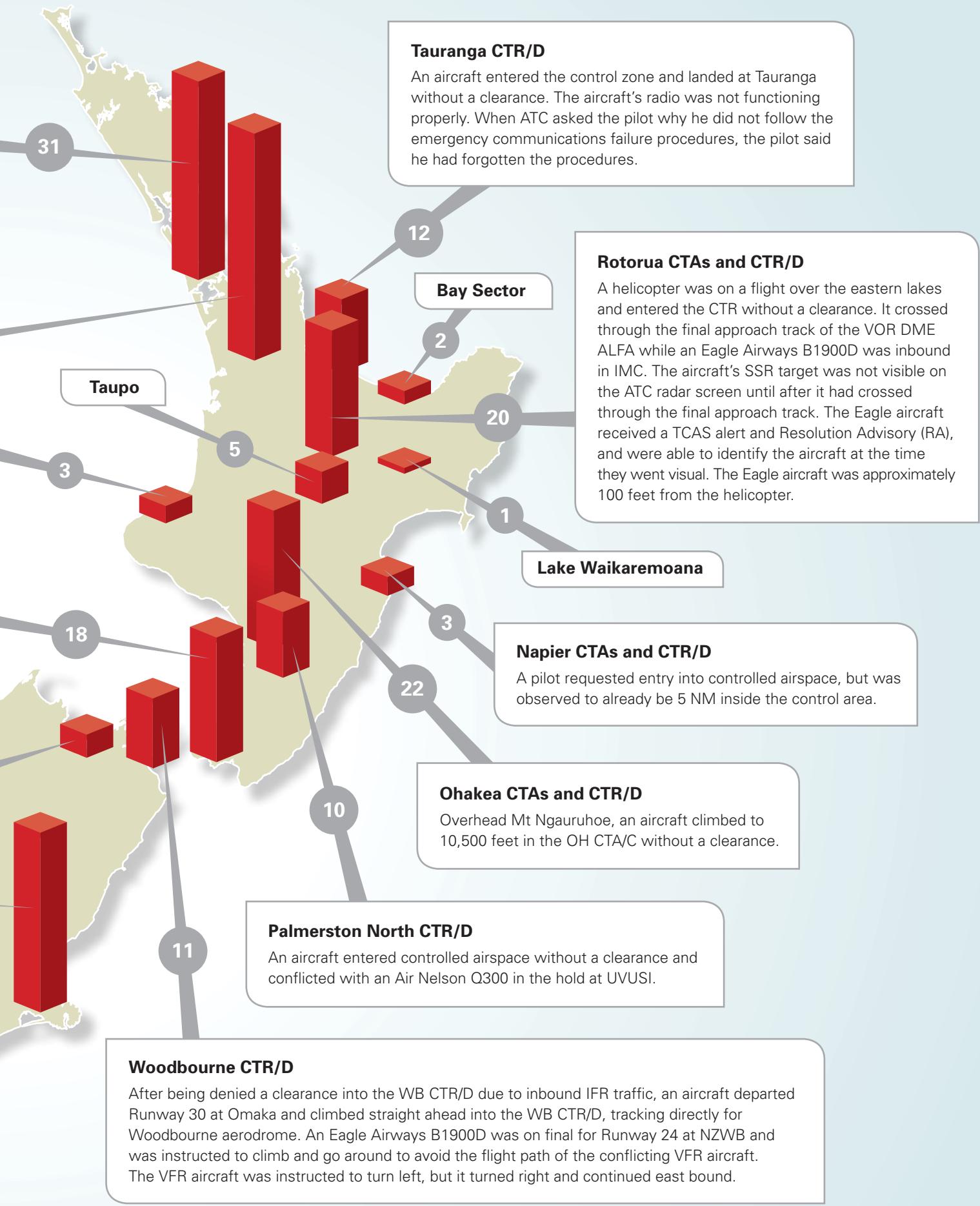
5

### Invercargill CTAs and CTR/D

The crew of an Air Nelson Q300 saw the red flashing lights of an aircraft while on a 2 to 3 mile final for Runway 22. The controller did not know of any other aircraft in the CTR. A call was made on 118.5 MHz but no response was received.

2

4



#### Dunedin CTAs and CTR/D

A Cessna 182 was required to take avoiding action from a Cessna 206 that approached from the right at the same altitude, with the aircraft passing within 200 metres of each other. The Tower was unaware of any other aircraft in the area. They were later contacted by the 206 pilot who advised they were operating in the area and experiencing radio problems at the time.

# Inspection Interval Extensions

We can all appreciate that it can be difficult to get your aircraft into maintenance exactly when a check falls due – an hour or two early is no problem, but what if we are faced with a date or aircraft hours overrun?

**R**ule 91.611 *Inspection planning latitude* provides for this situation, allowing the inspection intervals to be extended by up to 10 per cent for maintenance planning purposes, unless expressly prohibited by another rule, an airworthiness directive, or a manufacturer's mandatory inspection requirement. Note that the latitude for a 50-hour inspection is 5 hours, 10 hours for a 100-hour interval, but if there is a 50-hour due at the same time as a 100-hour, the leeway is only 5 hours.

If the inspection interval is extended, the rule requires that the new date, operating hours or cycles be entered in either the maintenance logbook or technical log, and that the next required inspection interval starts from the beginning of the extension period. The latter requirement is to prevent cumulative extensions. For instance, if the next 100-hourly check was due at 2550 hours and a 10-hour extension had been applied so that the check was done at 2560 hours, the next check would still be due at 2650 hours. Similarly with dates – if the 12-month inspection interval expired on 18 September, and the check was performed within a 36-day extension, the next year's due date would still be 18 September.

In a like manner, the review of airworthiness can be deferred by up to 36 days from the due date. This is stated in rule 91.615(c), but that rule does not require the review period to start from the beginning of the extension period. There is a trap here for young players – that requirement still exists, but is specified in rule 43.155(c)(2).

One method of recording a maintenance interval extension on the Technical Log.

All aircraft must be maintained in accordance with a maintenance programme or schedule (rule 91.605(a)). A maintenance programme will detail the operator's procedures for extending inspection intervals in accordance with rule 91.611. This requirement is specified in rule 91.607(b)(6). Quite a paper trail, with which the operator must have a good working knowledge.

Where the maintenance latitude has been exercised, a pilot would expect to see some evidence of this in the Technical Log (Form CA006). One way of showing this is by an entry in Section 1, along the following lines: *100-hourly inspection interval extended iaw Operator's Maintenance Manual Ch 5*, together with the new time and date in the appropriate column. The identity of the person making the entry should be clearly stated. Alternatively,

the original hours and due date in Section 1 could be crossed out and the new hours and date entered, again with at least the initials and client ID of the person making the entry. Some operators may have different methods, but the bottom line is that anyone flying that aircraft needs to know when the next inspection is due.

Who can enter the extension on the tech log? Normally this would be specified in the maintenance programme in use for that particular aircraft. It could be the operator's maintenance controller, company line pilots or in the case of a private aircraft, the owner.

Make sure you know beforehand how the system works, rather than having to scramble around trying to organise something at the 99.95 hour mark. ■



# Flight Instructor Seminars 2011

## THREATS AND ERRORS

The surest way to steer clear of Unmanned Aerial Vehicles (UAV) is to always read the NOTAMs.

**T**hat's the message Rex Kenny, the CAA's Sport and Recreation Manager, wants to get to participants at the forthcoming Flight Instructor seminars, scheduled for August 2011.

The theme of this year's seminars is Threats and Errors, and Rex will be presenting on the topic of UAV threats.

"There are going to be many more UAVs operating in our skies in the future, and also in segregated airspace that is often activated by NOTAMs. Students need to be made aware of the importance of reading NOTAMs, and of having an understanding of why certain airspace may be restricted," says Rex.

Another speaker at the one-day seminars is the CAA's Senior Medical Officer Dr Claude Preitner, who will talk about Hazardous Attitudes.

"It is important for Flight Instructors to be able to identify this problem in students while they are in training, and to be able to encourage safe attitudes. Flight Instructors should also remember to be conscious of their own attitudes and what they are imparting to the students," Claude says.

The CAA's Training Standards Development Officer, Carlton Campbell, will also be at the seminar. Carlton says his presentation will focus on type ratings, BFRs, and other topics on which students regularly ask questions of their instructors. He will highlight the information available through the CAA's Email Notification Service for Flight Instructors, and also highlight some relevant web pages, such as "What's New" and "Pilot Syllabus Assistance".

Other topics are airspace and aerodrome threats, and application and assessment of Threat and Error Management in GA.

The seminars run for one day this year, and are being held in Wellington, Christchurch and Auckland respectively.

Seminar organiser and the CAA's Flight Testing Officer, John Parker, is enthusiastic about the seminars.

"All flight instructors are welcome at these seminars and we hope they will make full use of this opportunity for professional development and standardisation. Flight instructors, even more so than pilots, require ongoing education – not only on aviation advances and technology, but also on instruction and people skills.

"The CAA conducts these seminars to encourage a constant quest for knowledge in the younger and less experienced flight instructors so that they can become self-reliant. While the seminars are not the answer to all flight training challenges, they are a means of support – they enable flight instructors and the regulator to work together to improve the content and delivery of instruction, to make learning to fly as safe as possible," says John.

These seminars are being sponsored by Aviation Services Limited, ATTTO, AIA, Accelerated Flight Testing, Flight Test NZ, Flying NZ (RNZAC), Airways NZ, and the NZ Airports Association.

There are still a limited number of places available. To see the programme details, venues, and to register, go to the CAA web site, [www.caa.govt.nz](http://www.caa.govt.nz), "Seminars and Courses". ■



## Changing Certificate of Registration holder?

If the aircraft is equipped with a 406 MHz beacon, don't forget to also notify changed details – either email [406registry@maritime.govt.nz](mailto:406registry@maritime.govt.nz) or do it online at [www.beacons.org.nz](http://www.beacons.org.nz). Out-of-date contact details will result in delays in responding to a beacon alert. ■



# Operational Competency and the BFR

Are they the same thing? Who is, and who isn't, required to do a Biennial Flight Review, and what does a BFR entail?

In order to exercise the privileges of your licence you must have successfully completed a BFR in the previous 24 months. There are three exceptions to this, however.

- » Professional pilots who fly for an operator certificated under Part 119, may exercise the privileges of their licence as long as they meet the operational competency requirements set out in Part 135, 125, or 121 (whichever is relevant to their operation). These six-monthly or annual competency demonstrations (OCAs) are specific to their operation, approved by CAA, and ensure that a pilot's core skills and knowledge are up to standard at more frequent intervals than a BFR.
- » Agricultural pilots are not required to complete a BFR, as long as they meet the annual currency requirements set out in Part 137, their logbook is endorsed, and form 24137/04 or 05 is submitted to the CAA.
- » The last exception is for current Category A, B, and C instructors. Category B and C instructors demonstrate their competence annually, and category A instructors biennially (to a CAA examiner).

## OCAs

An operational competency demonstration is not, as some may think, the same thing as a BFR, and it does not allow you to exercise the privileges of your licence for a further 24 months, like a BFR does. It covers you only for the validity period allocated to that particular competency demonstration (six or 12 months as applicable) and cannot be extended.

If operational competency or flight instructor currency expires, you immediately revert to student pilot privileges and each flight must be authorised by an instructor. You then have three options: complete an OCA or instructor competency test; do a BFR; or exercise student privileges.

## BFRs

There is no such thing as an ATPL BFR because you must meet the applicable flight crew competency checks required in Part 119, and Parts 121 and 125 in order to exercise the privileges of an ATPL, making a BFR unnecessary. A small number of CPLs, however, do exercise the privileges of their CPL outside a Part 119 organisation. An example of this would be deer recovery, so provision has been made for a CPL BFR.



So, you need to comply with the BFR requirements if you hold: an RPL, a PPL, or you hold a higher licence, and want to fly privately, but you do not meet the operational requirements mentioned above.

As long as a CPL, ATPL, or an A, B or C Category instructor is operationally current, they do not need a BFR to fly privately. If you are unsure of your currency, check the expiry date endorsed in your logbook. All other currency requirements do apply, for example, a current medical, 3 takeoffs and landings prior to carrying passengers etc.

## Times Have Changed

BFRs used to revolve around a pilot's normal operations, with emphasis on changes that had occurred to airspace or Civil Aviation Rules within the previous two years. They were flexible. If a pilot's normal operation was to do a few circuits on the weekend, then a few circuits would meet the BFR requirement.

This changed in 2006. In order to successfully complete a BFR, pilots must now demonstrate to a Category A or B flight instructor all the elements required in a licence issue flight test. The instructor must then submit the appropriate form to CAA (24061/11, 12, 14 or 15) and endorse the pilot's logbook.

Unlike the initial issue flight test, however, a BFR is a dual exercise, providing an opportunity to polish up your skills without the pressure of time constraints or 'testitis'. The instructor is pilot in command and must hold a type rating on the aircraft to be used.

A BFR can continue over several flights until competence in each area is demonstrated. For example, at least two flights would be required to complete the crosswind takeoff and landing requirements if your aerodrome does not have an intersecting runway, and there is no crosswind on the day.

In order to avoid any gap in currency, the elements of a BFR can be completed up to 60 days before it is due, and deemed to have been completed on the required date.

If you haven't met the operational requirements mentioned above, or the BFR requirements in Rule 61.39, for a period of 5 years or more, you will need to re-sit and pass the written law exam applicable to your licence.

Since a BFR must cover all the licence issue requirements, it is currently not possible to complete a BFR in a multi-engine aircraft. At the very least, the forced landing without power would need to be completed in a suitable single-engine aircraft. This can be a problem for PPLs who own multi-engine aircraft, and fly only their own aeroplane. John Parker, CAA Flight Testing Officer, says the CAA is aware of this issue.

"We intend to amend the list of exceptions to the BFR requirement, so that a licence holder who demonstrates to an examiner all emergency and normal manoeuvres appropriate to the operation of a multi-engine aircraft in the previous 12 months, is not required to complete a BFR to exercise the privileges of their licence. We feel that this requirement meets or exceeds the BFR requirement", says John.

Keep an eye on the CAA web site, [www.caa.govt.nz](http://www.caa.govt.nz), for more information about this proposed rule change. Aeroplane and helicopter *Flight Test Standards Guides* for PPL and CPL licence issue and BFRs are also available on the CAA web site.

## Type ratings

Next time you submit a BFR form to the CAA, attach a copy of the type rating page from your logbook. The Personnel Licensing team will update your licence details with any type ratings issued prior to 2008 (when it became compulsory to submit CAA form 24061/13 or 21 for type rating issues). ■

# Cold Comfort



By Dr Michael Drane

Being on the ground on a day when you planned to go flying is also no fun, but combining a cold with flying is the worst of all possible worlds. Flying while suffering from a cold is a great way of achieving that unhappy 'Up there wishing I was down here' feeling that pilots, crew (including cabin crew), and passengers alike, seek to avoid.

**T**ake off with a headache, fever, chills and blocked nose and/or ears and they could become the least of your problems. A cold can lead to dulled concentration, intense pain, and spatial disorientation, any one of which can cause you to crash your aircraft.

Early symptoms are usually tiredness and irritability along with a tickly, scratchy throat, blocked or runny nose, and a mild headache. The runny nose usually gets worse over several days before suddenly resolving.

The release of rapidly-multiplying virus particles into the body as host cells rupture is called the viraemic phase and is what causes the headaches, lethargy, and general feeling of sickness that we associate with a cold. It is often accompanied by sneezing, but fever is unusual with a common cold.

Colds impair performance more than most people realise. They may even lead to severe infections in the ears, sinuses or chest, all of which can be incapacitating if people continue to fly.

Many other viruses cause symptoms similar to those of the common cold. These can also be more severe than a cold and can extend to a harsh cough, fever, sore throat, or pneumonia. About two per cent of cold sufferers will also develop bronchitis and have a cough that produces phlegm.

Less dramatic, but equally unpleasant and dangerous in their own way, are the overflow of viruses into the bloodstream, and the swelling of nose and throat tissues, that are the main features of a cold. Feeling tired and unwell is incompatible with flying competently. Your decision-making abilities are impaired and may be insufficient at a critical moment. You do not want to discover this in mid air.

As the tissues lining your nose swell, your sinuses and the fine Eustachian tubes that link your nose to your ears become narrower and may close over. When your Eustachian tubes close it becomes impossible to equalise the pressure in your ears and sinuses. This is a major problem if you are flying, even as a passenger. The unequal pressures

in your head cause pain and tissue damage, described in aviation medicine as 'barotrauma'. Those who have endured it, describe the pain as being crippling enough to utterly distract a pilot from the task of flying. Pilots who have risked flying and suffered the consequences say they would never do it again, not least because subsequent recovery can take weeks.

Barotraumatic tissue damage can include bleeding into the eardrums, rupture of the eardrums or saturation of a sinus with blood – do you still want to tough it out and take off?

There are also many anecdotes of pilots reporting spatial disorientation when flying with a fuzzy head. No aviator should need to be reminded about how deadly this condition can be.

A Danish study of 948 commercial pilots revealed how easily barotrauma takes aviators by surprise. About one third of respondents reported one or more episodes of ear barotrauma in their flying careers, but of those less than two per cent had felt incapacitated before the flight.

Your only choice when you have a cold is to follow your mum's advice and get plenty of rest on the ground.

There is no cure for the common cold, so your immune system is all you have to battle the virus. You keep your immune system strong with a balanced diet rich in fresh fruits and vegetables, and by having adequate rest. Large doses of vitamins or mineral supplements are not a substitute for these. Your mum was right: you have to look after yourself.

Do not ask your doctor for antibiotics if you have a cold. Colds are caused by viruses, which are unaffected by antibiotics. Antibiotics are only of value if a cold leads to a secondary bacterial infection.

Medication can relieve the symptoms of a cold but not cure it. The cold keeps on brewing, even when its symptoms are masked. Aspirin or Paracetamol can help to relieve a headache or sore throat and may settle a mild fever. Decongestants

will reduce some of the swelling of the nasal lining tissues, and may make it easier to equalise pressure in the ears or sinuses.

Allergy to plant pollens, known as hay fever, can produce similar symptoms to a cold. The cause doesn't matter. If your ears are blocked and you are feeling blunt and stupid, it is not a day for flying, no matter how blue the sky.

Hay fever can usually be treated with antihistamines or decongestants, but antihistamines can cause drowsiness, which is a ground for grounding in itself.

Finally, there's a particularly dangerous condition that can sometimes – but rarely, it must be said – be precipitated by a viral infection, such as a heavy cold or flu. It is myocarditis, an inflammation of the heart muscle, with symptoms varying from none to chest pain, heart failure and sudden death. Myocarditis was implicated, although not proved as a contributing factor, in a 1991 helicopter crash on Queensland's Gold Coast that killed seven people. An autopsy discovered its signs in the body of the 27-year-old pilot.

The helicopter crashed after entering a vertical climb and falling backwards. It broke up as the main rotor sliced into the tail boom. The Bureau of Air Safety Investigation report found the pilot was 'sensible and mature' and considered it unlikely he would have attempted the climb as a stunt.

"It is possible that the vertical manoeuvre was initiated by the pilot losing control due to an incapacitating event. The lack of change in the helicopter's attitude during its final moments is also consistent with pilot incapacity," it found.

The pilot had no symptoms other than "an uncharacteristic need for additional sleep in the last three weeks of his life", the report noted. "Fatigue is a symptom of myocarditis", it added. Myocarditis is a very rare complication of a common cold but the point remains valid. A cold may be trivial on the ground but can be fatal in an aircraft. ■

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# New Aviation Diplomas

Three new National Diplomas in Aviation were launched in Wellington on 21 June 2011 by the Associate Minister of Transport, the Hon Nathan Guy.

**T**hese diplomas set a new international standard for aviation risk and safety management training, and will support the New Zealand Aviation industry's efforts to embed world-class practices within the public and private sectors.

The new qualifications have been developed jointly by the Aviation, Tourism and Travel Training Organisation (ATTTO), and Aerosafe Risk Management, a global provider of risk and safety management training, in conjunction with the Aviation Industry Association (AIA) and the CAA. Each of the diplomas is quality assured and registered by the New Zealand Qualifications Authority (NZQA).

The National Diploma in Aviation (Regulatory Oversight and Governance) is designed for aviation industry people who work with, or as, an Aviation Regulator; or in the field of regulatory compliance in an aviation organisation; or at a Board, Executive, or senior management level in an aviation organisation. The course can be delivered in two modes – via an Executive Leadership Programme, or Client Based Delivery.

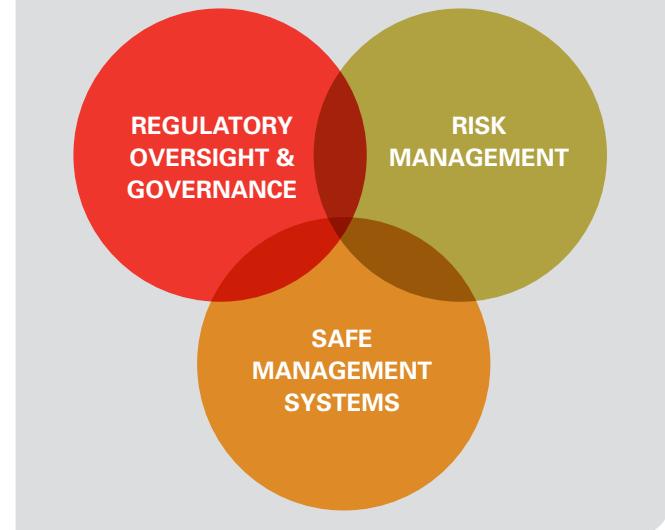
The National Diploma in Aviation (Risk Management) is pitched at a similar level, and comprises eight compulsory Unit Standards; and the National Diploma in Aviation (Safety Management Systems) is for all levels within an aviation organisation. The SMS diploma has six compulsory and two elective Unit Standards.

ATTTO Chief Executive, Elizabeth Valentine, said the Diplomas focus on driving cultural change in risk and safety management from the top down.

"Lifting risk management standards across an industry is about so much more than sending staff on a course. It is about up-skilling everyone, from the board and executive who lead and develop a safety oriented culture, to those who implement it. The three qualifications have something for people at all levels," says Elizabeth Valentine.

Further information on all three Diplomas is available on the ATTTO web site, [www.attto.org.nz](http://www.attto.org.nz), or the Aerosafe site, [www.aerosafe.com.au](http://www.aerosafe.com.au) ■

## The National Aviation Safety and Risk Management Diploma Series



## Changes to MetFlight GA

**T**he CAA has sponsored the MetFlight GA service since its introduction in 2004. This service is for recreational pilots operating at or below 10,000 feet, under Visual Flight Rules or Instrument Flight Rules. From the start, it was intended that this sponsorship would only run a short time before the system was funded directly by users. It has now been sponsored fully by the CAA for over seven years, but the CAA could no longer continue this arrangement.

Although this contract ended in Dec 2010, the CAA continued sponsorship through to the end of June 2011 in the hope that alternative sponsors or funding could be found by the aviation community. This has not happened, so MetService are introducing subscriptions for this service from 1 August 2011.

MetService are providing the service free for the month of July to allow time for the subscription service to be set up.

The url will be the same, <http://metflight.metra.co.nz>, and the log-on process will be similar to the existing process. Commercial users and training organisations will need to subscribe to the MetFlight Commercial or MetJet services.

For more information about MetFlight GA, log-on and payment inquiries, or to arrange subscriptions to MetFlight Commercial or MetJet, contact:

Amy Dreverman, email: [amy.dreverman@metservice.com](mailto:amy.dreverman@metservice.com),  
or Ray Thorpe, email: [ray.thorpe@metservice.com](mailto:ray.thorpe@metservice.com) ■

# Aviation Law Resource

A new free specialist aviation law web site with material from Australia and New Zealand has been developed with the assistance of the Aviation Law Association of Australia and New Zealand (ALAANZ).

## Australasian Aviation Law Library

[www.austlii.edu.au/au/special/aviation](http://www.austlii.edu.au/au/special/aviation)

The library provides many aviation law-related resources, such as legislation, cases, legal scholarship, law reform materials and treaties, in one searchable location. ■

## Switch it Off and Get Out

### Omission

In the May/June 2011 issue of *Vector*, we omitted the fact that Hamilton Airport has a full-time Airport Rescue Fire Service. Our apologies to the fire rescue crews in Hamilton. ■

## Light Aircraft Operations at Auckland International Airport

The latest *AIP New Zealand* amendment (effective 28 July 2011) details a new requirement for all non-scheduled general aviation operations by aircraft under 5700 kg to have the specific written permission of the airport company. A condition of any approvals will be the use of an authorised ground handler. For further details refer to *AIP New Zealand*, Vol 1, NZAA AD 2.4.

## How to Get Aviation Publications

### AIP New Zealand

*AIP New Zealand* is available free on the internet, [www.aip.net.nz](http://www.aip.net.nz). Printed copies of Vols 1 to 4 and all **aeronautical charts** can be purchased from Aeronautical Information Management (a division of Airways New Zealand) on 0800 500 045, or their web site, [www.aipshop.co.nz](http://www.aipshop.co.nz).

### Pilot and Aircraft Logbooks

These can be obtained from your training organisation, or 0800 GET RULES (0800 438 785).

### Rules, Advisory Circulars (ACs), Airworthiness Directives

All these are available free from the CAA web site. Printed copies can be purchased from 0800 GET RULES (0800 438 785).

## Planning an Aviation Event?

If you are planning any aviation event, the details should be published in an *AIP Supplement* to warn pilots of the activity. For *Supplement* requests, email the CAA: [aero@caa.govt.nz](mailto:aero@caa.govt.nz).

To allow for processing, the CAA needs to be notified **at least one week** before the Airways published cut-off date.

Applying to the CAA for an aviation event under Part 91 does not include applying for an *AIP Supplement* – the two applications must be made separately. For further information on aviation events, see AC91-1.

CAA Cut-off Date	Airways Cut-off Date	Effective Date
8 Aug 2011	15 Aug 2011	20 Oct 2011
5 Sep 2011	12 Sep 2011	17 Nov 2011
3 Oct 2011	10 Oct 2011	15 Dec 2011

See [www.caa.govt.nz/aip](http://www.caa.govt.nz/aip) to view the *AIP* cut-off dates for the year 2011.

## Aviation Safety Advisers

Aviation Safety Advisers are located around New Zealand to provide safety advice to the whole aviation community. You can contact them for information and advice.

### Don Waters (North Island)

Tel: +64 7 376 9342  
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## Aviation Safety & Security Concerns

Available office hours (voicemail after hours).

**0508 4 SAFETY**  
(0508 472 338)

[isi@caa.govt.nz](mailto:isi@caa.govt.nz)

For all aviation-related safety and security concerns

## Accident Notification

24-hour 7-day toll-free telephone

**0508 ACCIDENT**  
(0508 222 433)  
[www.caa.govt.nz/report](http://www.caa.govt.nz/report)

*The Civil Aviation Act (1990) requires notification "as soon as practicable".*

# Accident Briefs

More Accident Briefs can be seen on the CAA web site, [www.caa.govt.nz](http://www.caa.govt.nz), "Accidents and Incidents".  
Some accidents are investigated by the Transport Accident Investigation Commission, [www.taic.org.nz](http://www.taic.org.nz).

## ZK-EHY Piper PA-38-112

Date and Time:	12-Jul-10 at 12:30
Location:	Ruahine Range
POB:	2
Injuries (Serious):	2
Damage:	Destroyed
Nature of flight:	Training Dual
Pilot Licence:	CPL (Aeroplane)
Age:	30 yrs
Flying Hours (Total):	1748
Flying Hours (on Type):	1000
Last 90 Days:	69

A CPL student and a B-Category Instructor were on a CPL cross country flight test. They flew from Hawke's Bay to Feilding via Foxpine, completed a touch and go and then flew to the east, towards the Ruahine Ranges. The visibility was good with negligible wind.

After leaving Feilding the instructor put the student under the 'foggles' for instrument training, prior to performing a low level 'lost procedure'. This was initiated at the entrance to the ranges, overhead the Pohangina River. The student was asked to determine his position and proceed to Dannevirke, below a fictitious 2000 feet AMSL cloud base.

After entering the valley system the student made a navigational mistake and flew into the wrong valley. This was not picked up by the instructor. The instructor took control when he realised the wide valley they were in suddenly narrowed to a point. The instructor turned the aircraft 90 degrees and entered a maximum angle climb. Realising they were going to collide with the terrain he deliberately stalled the aircraft into the terrain.

[CAA Occurrence Ref 10/2686](#)

## ZK-HOQ Hughes 369D

Date and Time:	8-Sep-10 at 20:15
Location:	Milford Sound
POB:	1
Injuries:	0
Damage:	Substantial
Nature of flight:	Private Other
Pilot Licence:	CPL (Helicopter)
Age:	49 yrs
Flying Hours (Total):	3481
Flying Hours (on Type):	1753
Last 90 Days:	42

The pilot undertook a private flight from Haast to Bligh Sound and return. On the way south a couple of landings were carried out, with two jerry cans being emptied into the helicopter on one of them. On the return trip from Bligh Sound the helicopter suffered an engine failure. The pilot executed an autorotation and landed as

close to the shore as possible. On contacting the water the pilot exited the aircraft and swam to a nearby rock. The aircraft quickly sank and was completely destroyed overnight due to wave action. The pilot was rescued two hours after the accident by a passing fishing boat. He sustained no injuries. Due to damage, complete testing could not be carried out on critical engine parts.

[CAA Occurrence Ref 10/3471](#)

## ZK-RBL Brock KB-3

Date and Time:	4-Jan-11 at 10:25
Location:	Omaha Flats
POB:	1
Injuries (Minor):	1
Damage:	Substantial
Nature of flight:	Private Other
Age:	80 yrs
Flying Hours (Total):	83
Flying Hours (on Type):	50
Last 90 Days:	2

The gyrocopter lost power shortly after takeoff. An attempt was made to turn back to the airfield, however the gyrocopter landed heavily in the adjacent estuary.

[CAA Occurrence Ref 11/2](#)

## ZK-BDD Cessna 180

Date and Time:	2-Feb-11 at 12:30
Location:	Fairfield Downs
POB:	1
Injuries:	0
Damage:	Substantial
Nature of flight:	Private Other
Pilot Licence:	RPL (Aeroplane) PPL (Aeroplane)
Age:	69 yrs

The pilot was taxiing for takeoff from his farm airstrip. Prevailing wind conditions caused a loss of directional control requiring the pilot to stop the aircraft engine. The aircraft continued moving, however, and rolled backwards down an adjacent bank. The aircraft was damaged but the pilot was uninjured.

[CAA Occurrence Ref 11/435](#)

## ZK-KGB Yakovlev Yak-52

Date and Time:	8-Feb-11 at 16:50
Location:	Pauanui
Damage:	Minor
Nature of flight:	Private Other

On selecting the undercarriage down, the right main gear stayed locked up. The pilot elected to carry out a wheels up landing, which was successfully completed with minor damage to the aircraft.

[CAA Occurrence Ref 11/503](#)

**ZK-FGE Cessna 152**

Date and Time:	11-Feb-11 at 15:11
Location:	Omaka
POB:	1
Injuries:	0
Nature of flight:	Training Solo
Age:	21 yrs
Flying Hours (Total):	88
Flying Hours (on Type):	88
Last 90 Days:	30

The private pilot was conducting a solo cross-country training exercise which included a landing at Omaka. During the landing the pilot allowed the aircraft to bounce and then failed to correct the situation. The nose wheel collapsed, the propeller struck the ground, and the aircraft came to rest on its nose. The pilot was shaken but unhurt.

[CAA Occurrence Ref 11/556](#)

**ZK-TMM Pacific Aerospace Cresco 08-600**

Date and Time:	17-Feb-11 at 14:35
Location:	Taumarunui
POB:	1
Injuries:	0
Nature of flight:	Agricultural
Pilot Licence:	CPL (Aeroplane)
Age:	72 yrs
Flying Hours (Total):	26600
Flying Hours (on Type):	3000
Last 90 Days:	100

The aircraft commenced a takeoff and struck the loading vehicle which was leaving the loading area. The loader driver was slowly backing away after loading the aircraft, as he felt he may have been too close to the aircraft. The pilot in command failed to ensure that the loader was clear prior to commencing the takeoff roll.

[CAA Occurrence Ref 11/992](#)

**ZK-XAM Micro Aviation Bantam B22J**

Date and Time:	9-Jun-10 at 11:00
Location:	Opunake
POB:	1
Injuries (Minor):	1
Nature of flight:	Private Other
Pilot Licence:	PPL (Aeroplane)
Age:	37 yrs
Flying Hours (Total):	150
Flying Hours (on Type):	60
Last 90 Days:	25

The Bantam microlight was attempting a landing very shortly after a departing heavily loaded Cresco, and was unable to maintain directional control. The pilot attempted a go-around, however, the microlight struck a rocky outcrop.

[CAA Occurrence Ref 10/2202](#)

**ZK-DOK Piper PA-30**

Date and Time:	20-May-10 at 19:15
Location:	Ardmore
POB:	2
Injuries:	0
Damage:	Minor
Nature of flight:	Ferry/Positioning
Pilot Licence:	ATPL (Aeroplane)
Age:	65 yrs
Flying Hours (Total):	28,696
Flying Hours (on Type):	1000
Last 90 Days:	173

The pilot forgot to lower the landing gear during the approach. He also did not notice the dimly lit gear warning light, and due to the cross-wind conditions that night he elected to land without flaps. This configuration therefore required a higher power setting which effectively prevented the gear warning horn from alerting him about the landing gear. The aircraft then slid to a stop on the runway. No-one was injured.

[CAA Occurrence Ref 10/1920](#)

**ZK-GSL Schempp-Hirth Discus b**

Date and Time:	17-Nov-10 at 16:36
Location:	West of Omarama
POB:	1
Injuries (Minor):	1
Damage:	Substantial
Nature of flight:	Private Other
Flying Hours (Total):	290
Flying Hours (on Type):	120
Last 90 Days:	50

During a gliding competition, the glider pilot ended up low in a valley system and conducted an outlanding. During the outlanding, the glider landed short and heavy which caused substantial damage to the glider.

[CAA Occurrence Ref 10/4555](#)

**ZK-RKG AutoGyro Europe MT03 eagle**

Date and Time:	26-Dec-10 at 12:30
Location:	Lake Rotoehu
POB:	1
Injuries:	0
Damage:	Substantial
Nature of flight:	Private Other
Age:	53 yrs
Flying Hours (Total):	243
Flying Hours (on Type):	243
Last 90 Days:	9

While taxiing, the autogyro's left rear wheel fell into a hole, causing the pilot to inadvertently increase the throttle to full power. The autogyro accelerated, and fell down a bank beside the runway.

[CAA Occurrence Ref 10/5153](#)

# GA Defects

GA Defect Reports relate only to aircraft of maximum certificated takeoff weight of 9000 lb (4082 kg) or less.  
More GA Defect Reports can be seen on the CAA web site, [www.caa.govt.nz](http://www.caa.govt.nz), "Accidents and Incidents".

## **Key to abbreviations:**

<b>AD</b> = Airworthiness Directive	<b>TIS</b> = time in service
<b>NDT</b> = non-destructive testing	<b>TSI</b> = time since installation
<b>P/N</b> = part number	<b>TSO</b> = time since overhaul
<b>SB</b> = Service Bulletin	<b>TTIS</b> = total time in service

## **Aerospatiale AS 350BA**

### Tail rotor control cable

Part Manufacturer:	Eurocopter
Part Number:	704A34-130-184
ATA Chapter:	6720
TTIS hours:	2200

The pilot conducted a precautionary landing after stiffness was experienced operating the tail rotor pedals. Engineering investigation revealed that the tail rotor control cable was binding internally. It is a push/pull type cable. The engineers think it may have been a gradual degradation occurring over time. The pilot remarked how smooth and free the pedals were once the new cable was installed. On the day of the occurrence it had started to bind up significantly, resulting in the precautionary landing.

[CAA Occurrence Ref 11/360](#)

[CAA Occurrence Ref 10/3639](#)

## **Cessna 152**

### Crankcase

Part Model:	O-235-L2C(M)
Part Manufacturer:	Lycoming
ATA Chapter:	8500
TSI hours:	90
TSO hours:	2079
TTIS hours:	13,373

While climbing during solo training manoeuvres, a loss of power and significant vibration was experienced. A successful forced landing was conducted with partial power until approximately 50 feet, when the engine stopped completely. Maintenance investigation found that the crankcase had fractured around the base of the number two cylinder allowing the cylinder to become detached from the crankcase. The engine, which had been modified to produce 125 HP by STC, was operating on a 200-hour life extension to increase the TBO from 2000 hours to 2200 hours. The engine had run 79 hours into the 200-hour extension. Examination of the crankcase found that it had been previously weld repaired in the area of the number two cylinder flange. From the fracture surfaces, it appeared that one of the internal reinforcing webs in this area had been cracked for some time prior to the number two cylinder becoming detached.

[CAA Occurrence Ref 10/3480](#)

## **Cessna 172R**

### Fuel control unit

Part Manufacturer:	Precision
Part Number:	61J22088
ATA Chapter:	7320
TTIS hours:	9

The aircraft was on a CPL dual cross-country, and the flight had proceeded normally from AR to HN then onwards to RO. On final approach to RO, while descending through 500 feet agl, the student applied power without response from the engine. The instructor then took control and applied full power with no response. The instructor contacted RO tower to advise the situation, lowered the nose of the aircraft, and landed just after the Runway 18 threshold. On landing, the aircraft's engine stopped. It could not be restarted so the Resue Fire Service towed the aircraft from the runway. Maintenance investigation could not positively identify the cause of the fuel control unit malfunction, which had provided an excessively rich fuel mixture to the engine. When the unit was disassembled a small amount of inhibiting fluid was found in the fuel control servo, which may have affected its operation. The unit was reassembled, bench tested, and refitted to the engine.

[CAA Occurrence Ref 10/3639](#)

## **Cessna 182N**

### Frame attachment bulkhead

Part Manufacturer:	Cessna
Part Number:	0713608-3
ATA Chapter:	5300
TTIS hours:	8047

While carrying out Cessna Mandatory Service Bulletin SEB 95-19 – Lower Forward Doorpost and Strut Fitting Inspection and Modification, a crack was found in the forward doorpost bulkhead radius. The forward doorpost bulkhead was repaired using Cessna repair kit SK182-155. The maintenance provider notes that this is the third occurrence of a cracked bulkhead that he has found while carrying out this Service Bulletin.

CAA comment: Manufacturer's service information (including Service Bulletins) should be assessed by aircraft owners and maintenance providers as to whether compliance is required for your aircraft. Refer to Continuing Airworthiness Notice 05-002 (Service Bulletin Compliance) for further guidance. As Service Bulletins are generally of a repetitive nature, they should be recorded in the Out of Phase section in the Aircraft Log Books. Maintenance providers and aircraft owners should not rely on CAA Airworthiness Directives to provide a backup to the manufacturer's instructions for continued airworthiness.

[CAA Occurrence Ref 10/3169](#)

## Cessna 180

### Forward and rear spars

Part Manufacturer: Cessna

Part Number: 0732100-7

ATA Chapter: 5510

During airframe damage repair, unapproved repairs were discovered on the aircraft's horizontal stabiliser forward and rear spars. These repairs severely compromised the structural integrity of the horizontal stabiliser structure. The repairs were carried out in the United States prior to the aircraft being imported into New Zealand. The spars were replaced.

[CAA Occurrence Ref 10/2813](#)

## Cessna 180

### Undercarriage bulkhead skin

Part Manufacturer: Cessna

Part Number: 0513006-11

ATA Chapter: 5330

During repairs to the airframe, the undercarriage bulkhead upper skin was found to have unapproved repairs consisting of two additional four-inch inspection holes cut in the skin, and also two unapproved skin splices, which weaken the structure considerably. The unapproved repairs were carried out in the United States prior to importation into New Zealand. The skin is to be replaced.

[CAA Occurrence Ref 10/2814](#)

## Cessna 185B

### Lower door sill

Part Manufacturer: Cessna

Part Number: 0511116-1

ATA Chapter: 5310

It was reported that various non-conforming parts had been found installed on the aircraft, amounting to illegal repairs. Nothing in the maintenance documentation was found relating to these repairs. The LAME who reassembled and certified the aircraft on entry into the NZ system in 2007 is now deceased so further enquiries within NZ are not possible.

[CAA Occurrence Ref 10/3681](#)

## Cessna A152

### Vertical fin

Part Manufacturer: Cessna

Part Number: 0431009-3

ATA Chapter: 5530

TTIS hours: 6838

While carrying out the vertical fin attachment bracket inspection (DCA/CESS/150/129 and CAP 55-30-00), the vertical fin attachment bracket was found to be cracked in the radius. The vertical fin attachment bracket was replaced.

[CAA Occurrence Ref 10/5022](#)

## Diamond DA 40

### Fuel systems

Part Model: DA 40

Part Manufacturer: Diamond Aircraft Industries

ATA Chapter: 2800

While climbing through 8500 feet on a solo training flight, the pilot experienced what was thought to be a partial loss of engine power, and was unable to increase the manifold pressure above 21". All attempts to adjust the power setting were unsuccessful. During this process, a low fuel pressure warning was indicated on the fuel pressure gauge. The electric fuel pump was turned on, which restored fuel pressure within normal limits and the pilot decided to divert to the nearest suitable aerodrome.

During maintenance investigation, a ground run was carried out with all parameters normal. In-flight checks were carried out on the return flight, with the system satisfactory. Physical checks and extensive ground runs were carried out when the aircraft returned to base – no defects were apparent.

Under Normal Operating Procedures in the DA 40 Flight Manual "cautions" state "operation at high altitudes with the electrical fuel pump OFF may cause vapour bubbles, resulting in intermittent low fuel pressure indications, sometimes followed by high fuel flow indications". Incorporated in the cruise climb check list is an action to turn the electrical fuel pump ON at high altitudes. To prevent further low fuel pressure warning indications due to operation at high altitudes, the operator has implemented a Standard Operating Procedure which requires the electrical fuel pump to be selected ON when the aircraft is operated above 5000 feet. The apparent engine power loss indication observed by the pilot was due to the normal manifold pressure decrease with increasing aircraft altitude.

[CAA Occurrence Ref 11/429](#)

## Diamond DA 42

### Clutch

Part Model: TAE 2.0

Part Manufacturer: Centurion

Part Number: 05-7211-K006002

ATA Chapter: 8500

TTIS cycles: 335.4

TTIS hours: 22,279

During asymmetric training on an instrument approach, the right hand engine power was increased to 100 percent. The power output fluctuated down to 79 percent, then stabilised at 100 percent. After levelling off inbound, the right hand engine failed. The engine was secured and an uneventful asymmetric landing was carried out. Maintenance investigation found that the right hand engine clutch friction disk had failed. The clutch assembly was replaced with an upgraded clutch assembly and a ground run was carried out satisfactorily.

[CAA Occurrence Ref 11/1230](#)

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