January / February 2009

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POINTING TO SAFER AVIATION

When IFR Meets VFR

Wind Farms

Avoiding Wirestrikes

AvKiwi Safety Seminars – Weather to Fly

CAA CIVIL AVIATION AUTHORITY OF NEW ZEALAND

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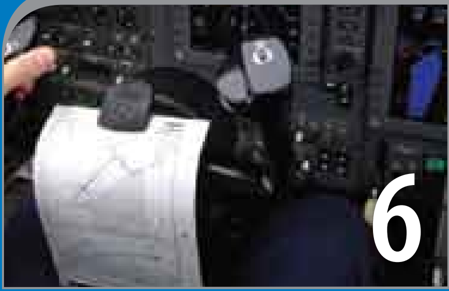

When IFR Meets VFR

If you are flying IFR in an aircraft that is considerably faster than the average GA bug-smasher, safely integrating into the VFR traffic circuit requires forethought and a conscious shift from an IFR mindset to a VFR mindset. Here are some tips.

Wind Farms

At least four significant wind farms are being constructed over the next two years. These won't be just one or two turbines. The largest will have 131 turbines, and the highest will tower about 500 feet agl. We tell you their locations and how you will be informed about them.

Avoiding Wirestrikes

Constant vigilance, understanding that the human mind has limitations, and that it likes to play tricks on you, is the basis of this article on avoiding wirestrikes. If you are going to be operating low level, it is critical that you understand the wire environment, so that you can avoid an unexpected wire encounter.

AvKiwi Safety Seminars – Weather to Fly

This year's safety seminars are on weather, specifically weather related decision making and an update on the recent changes. As always, the seminars are well worth your time – we'll even provide a sausage roll and a small beverage for you afterwards.

In this issue...

Cover: A Beech 1900D operated by Eagle Airways, see *When IFR Meets VFR*, page 6. Photo: Above Ground Level.

Published by
The Communications and Safety Education Unit of the Civil Aviation Authority of New Zealand, P O Box 31–441, Lower Hutt 5040, New Zealand.

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Fax: +64–4–569 2024,
Email: info@caa.govt.nz.
Published six times a year, in the last week of every odd month.

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Design
Gusto Design & Print Ltd.

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 ISSN 1173-9614

Big Jet Considerations

At airports such as Auckland, Rotorua, Wellington, Christchurch and Queenstown, and in the airspace around them, light aircraft often need to operate along with big jets.

While operating in the same airspace can sometimes seem like you are getting the rough end of the stick, knowledge of the differences between jets and propeller aircraft may help you understand the big jet's limitations and operation, and hopefully lead to a peaceful co-existence.

Momentum

Primarily, momentum affects an aircraft's ability to change direction and speed quickly. In addition, more distance is covered during any manoeuvre, particularly turns. High weights and speeds mean quick changes simply cannot happen.

One of the jet pilot's primary tasks is to manage the aircraft's momentum – getting a jet to change direction or speed takes planning.

Speed

In order to slow down, jets need to transition from high speeds in excess of 420 knots in the cruise, to speeds where flap can be extended, and the aircraft configured for landing. At 7 NM per minute, that takes a lot of miles and advanced planning.

Descents will typically be flown at 300 to 320 knots to 10,000 feet where speed is usually reduced to 250 knots, however in certain airspace 300 knots may be continued below 10,000 feet. While an aircraft is flying at 300 knots it is covering 5 NM a minute, and holdups of only a few minutes translate into large distances that can eat into the descent profile, and the aircraft's ability to arrive at the beginning of the approach at the right altitude and speed.

Practically, it is very difficult for a jet to slow down and go down at the same time, and the daily challenge facing a jet pilot is to manage the descent efficiently. When they do need to slow down during a descent, it requires a significant decrease in rate of descent, therefore increasing the number of track miles needed to achieve a certain altitude.

The perfect descent starts with the thrust levers being retarded to idle at the top of descent point. The next time they are moved is during the last stages of the approach as the final stages of flap are selected. But we do not live in an ideal world, so planning ahead for a multitude of scenarios is required.

Implications

The implication for lighter aircraft operating near jets is that to turn or slow down takes time and distance for a jet. For example, a jet positioning downwind

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will be in a much wider position than a light aircraft, in order to allow enough room to make the turn onto final. A jet won't be flying a square base leg – it will be a continuous curve from the end of the downwind leg until rolling out on final.

A difference of 10 knots for you on the approach may not seem a lot, but a jet does not have the flexibility to slow down quickly in response to your speed changes, and more importantly the closing speed is high.

If the average light aircraft is doing 70 to 80 knots on short final, and the average jet is doing 140 knots, then the closing speed is 60 to 70 knots. While it is the responsibility of the pilot of the following aircraft to maintain appropriate spacing, this can prove problematic for a jet if the aircraft ahead makes rapid or unexpected speed changes.

Jet Engines

Jet engines have enabled massive distances to be covered and are very efficient, but despite all their benefits they have some operating challenges.

Jet engines are at their most efficient when operating at very high rpm, typically 90 to 95 percent, and at high altitudes, usually above 30,000 feet. Jet engines are also very inefficient below 10,000 feet, so pilots will want to avoid spending any more time than necessary there.

To accelerate a jet engine from low rpm takes time – this is called lag, or spool-up delay. Rapid thrust lever movements do not translate to rapid increases in thrust. This delay is critical during the approach, landing, and missed approach phases. Once accelerated, however, the turbine engine produces massive amounts of thrust, and in a go-around this needs to be carefully managed.

Jet engines also produce large amounts of thrust at low thrust settings, particularly during taxi. Jet blast can be a significant danger to those on the ground, especially ground crew and small aircraft. It is also a particular danger for aircraft operating behind a jet taking off. See the *Wake Turbulence* GAP booklet for more information.

Operating a Jet

Flying Slowly

Flying slowly does not come naturally for a big jet, and it needs help, in the form of high lift devices such as slats, slots and flaps, to reduce to and maintain the speeds required for takeoff and landing.

While operating at these slower speeds, the jet has a high requirement for speed stability, and yet it does not naturally possess it. This poor speed-stability, in addition to the engine lag, means that if the speed decays, it can be a challenge to get it back.

The Approach

Typical speeds for a jet during the approach range anywhere from 220 knots before flap extension, to 160 knots in the middle stages of the approach, down to 130 knots crossing the threshold.

The major difference between jet aircraft and propeller aircraft on the approach is that jets have a much slower response to thrust lever changes. With a propeller, increasing the thrust levers results in a virtually instant increase in speed and lift. On approach, the jet engine is operating outside its optimum rpm range and it does

not have the benefit of propeller slipstream, so an instant speed and lift increase is not available to the jet pilot. Consequently it takes anticipation to maintain a stable speed and descent rate on the approach.

The speed band a jet operates in once on the approach is a small one, and deviations cannot be accepted, on the high or low side. If you are ahead of a jet and asked to keep your speed up, be mindful of the speed limitations and overall speed of the jet behind you.

The Go-Around

If you are landing ahead of a jet, clearing the runway promptly is also important – a go-around can be a major imposition for a jet, cost significantly in fuel and time, and is a busier operation than in a light aircraft.

Wake Turbulence

Wake turbulence is also an obvious danger to lighter aircraft when operating around big jets. The worst wake turbulence will be produced by a heavy aircraft flying slowly in the clean configuration. You are most likely to encounter jets in this configuration when they are on the downwind leg. This is the level segment at the end of the descent, when they are being slowed down in order to extend flap, and prepare for the approach phase.

For a full appreciation of the dangers of wake turbulence see the *Wake Turbulence* GAP booklet.

Workload

Workload is high on the jet flight deck during the initial climb out as well as on descent. The aircraft is moving at high speed, doing anywhere in the region of 3.5 to 7 NM a minute. Last minute changes, needing to keep an eye on local circuit traffic, and possibly having to take avoiding action, all takes attention away from the core task of flying big jets safely.

Position Reporting

Making accurate position reports will also help you to avoid a close encounter with all that heavy metal. The 'see and avoid' principle doesn't work particularly well when you are travelling at 250 knots, especially when you could be closing at over 300 knots.

Transponder Use

ACAS (TCAS) has become a critical piece of equipment, and in order for it to work well, it is important that all aircraft use their transponders in the appropriate mode, either Mode C or Mode S, if equipped. This is not only important in the circuit, but at all times. There are times when jets come close to the lower levels of controlled airspace, and spotting traffic while travelling at high speeds is particularly difficult – any help crews can get from transponder technology is invaluable.

In Conclusion

More often than not you will be closest to jet aircraft when they are operating below 10,000 feet and flying slowly. In these situations they are not as manoeuvrable as you are and cannot change their speed or direction of travel quickly.

Give them the space and consideration they need to operate efficiently – and most importantly safely. ■

Photos: Above Ground Level

When IFR **Meets VFR**

Safely integrating into the VFR traffic circuit requires forethought and a conscious shift from an IFR mindset to a VFR mindset.

You're the pilot of a light twin or turboprop. You happily truck up and down the country in straight lines everyday. You get vectors to final, then cruise on down the glideslope.

Until one day, when you have to land at an aerodrome in Class D or G airspace – where 'lighties' abound like killer bees in "The Swarm". You suddenly realise that finding your way around the circuit visually, and judging your position in relation to other traffic, are distant memories from your student pilot days.

You hear four aircraft in the circuit, another one joining and one vacating – what sort of bug-smashers will they be? Either way, you will eat them alive – better hang everything out in an attempt to slow down.

When your friend, TCAS, starts having kittens keeping up with all the traffic, it dawns on you that you should really start looking out the window and actually fly the aircraft with reference to the ground.

You take a deep breath and disconnect 'George'. Your downwind leg ends up too wide, and you maintain circuit height about as well as all the student pilots in the circuit. You get a headache trying to figure out when to turn base to allow time for the 'lightie' on final to clear the runway.

Somehow it all works out this time. When you barrelled on in, you only terrified one student pilot in the circuit into giving up flying – the CFI will thank you for weeding out the weakest link, won't they?

What could you do differently in the future? Why was fitting into the VFR traffic pattern at a small airport, on a nice day, so difficult?

If you are flying IFR in an aircraft that is considerably faster than the average GA bug-smasher, here are some tips for integrating into the VFR traffic circuit.

Get Ahead of the Aircraft

Prepare Early

Obtain the latest METAR, or listen to the ATIS (if available) to establish the runway in use. Think about the terrain around the aerodrome, the direction you will approach it from, how big your circuit should be, and how you will enter the circuit.

Joining the circuit straight-in will give you less time to see, and integrate with, traffic already established in the circuit. Consider joining crosswind or downwind – it may take you a couple of minutes longer, but it will help with the integration process. Visualise all of this before you have to execute it.

Always brief a visual approach as thoroughly as you would an instrument approach.

Speed Planning

The faster you are, the more challenging it will be to integrate – therefore more important to plan ahead.

Work out what speed you want to be, and what altitude you need to be at, when you join the circuit. Plan your descent accordingly. This can be overlooked if you are used to receiving altitude and speed assignments from ATC. Reducing the speed differential will make it easier to see and fit in with VFR circuit traffic.

Traffic Awareness

As soon as you can, listen out on the local frequency for traffic in the circuit and build a mental picture of what is going on. When you are close enough, make sure you keep a good lookout. Don't leave it up to ACAS (TCAS) – you need to be actively looking for traffic. ACAS is an excellent tool to help you visually sight traffic.

Remember how accurate your radio calls were when you were learning? So don't rely solely on what you hear – believe it when you see it.

Let other traffic know where you are in terms they will understand. Give your position relative to visual reporting points (VRP), or the aerodrome, rather than reporting which instrument approach you are conducting. VFR pilots may not know what an 'NDB ALFA' approach is, but they will understand '10 NM southwest'. Knowledge of local VRPs will help your situational awareness. A position report should be made approximately 10 NM from the aerodrome, but this is not a hard and fast rule, if there is a well known VRP at 12 NM report there instead (if it will help VFR traffic understand your position). Also, make yourself visible by turning on lights.

Give some thought to how you will slot in among the slower traffic. Traffic already in the circuit has right of way – joining aircraft must fit in around them.

The most dangerous situation would be flying an instrument approach when the cloud base is around 1200 feet, with VFR aircraft already established in an opposing circuit. For example, flying an approach to the sealed runway 20 at Timaru, with a GA aircraft in the circuit for grass runway 11. You would be popping out of cloud with the least amount of time possible to see and avoid the traffic flying through your final approach path. It is essential for two-way communication to be established with the traffic in the conflicting circuit. Make sure they are aware of the situation, rather than just transmitting your intentions and hoping they understood what you are planning to do.

Practise

Practise judging visual approaches. This can be a long lost skill if you are used to flying straight-in approaches, with vectors to final, and having a glide slope or advisory altitudes to follow. If you can, also practise visual approaches purely with reference to the ground – without using the approach lights or checking your DME distance, in case you have to do just that at an aerodrome without lights (such as Hastings), or somewhere the lights are unserviceable.

Attitude

Think about how your actions will affect other aircraft. Barrelling into the circuit with a 'get out of my way' attitude, or sitting on the runway waiting for a clearance (causing light aircraft to go around), is not conducive to a peaceful coexistence.

Small and Fast

This scenario does not, however, only apply to light twins, biz jets, and turbo props flying IFR into aerodromes in Class D and G airspace. There is such a variety of aircraft speeds within the GA category now, that the same principles apply to fast GA aircraft (flying VFR).

Tips for VFR Circuit Traffic

Here are three simple things you can do to help faster aircraft integrate into the VFR circuit pattern:

- Make clear radio calls, accurately stating your position.
- Actively look for the faster traffic.
- If you don't understand their position report – ask them to explain where they are. ■

Wind Farms

At least four significant wind farms are being constructed over the next two years. These won't be just one or two turbines. The largest will have 131 turbines, and the highest will tower about 500 feet agl.

Wind farms are generally spread over large areas, typically along ridge lines.

Imminent wind farm locations:

- Makara Beach to Cape Terawhiti, west of Wellington – 62 turbines, 360 feet agl (109.5 m)
- Mount Stuart, west of Dunedin – 9 turbines, 246 feet agl (75 m)
- Turitea, south east of Palmerston North – 131 turbines, 410 feet agl (125 m)
- Puketoi Range (east of Woodville) between Waitahora and Horoeka – 66 turbines, 492 feet agl (150 m).

Construction on Makara's first turbine will begin in February 2009. The Makara wind farm will require airspace changes to the sectors within Wellington's Control Zone. The wind farm and the sector changes, however, will not appear on the Visual Navigation Charts (VNC) until the November 2009 charts are printed. Full details will be published by *AIP Supplement*, until the VNCs are revised.

Some wind farm developments may affect the Maximum Elevation Figure (MEF) for the VNC grid they are within. If this is the case, the new MEF will be advised by NOTAM, then *AIP Supplement*, until new VNCs are produced. This could potentially affect what route you plan to take, so always check the latest Supplement for new structures.

Only some wind farms are actually marked on the VNCs. The CAA is not required to be notified about turbines less than 200 feet high, and only those deemed to be affecting navigable airspace (in general those above 400 feet, close to an aerodrome, or within a Low Flying Zone) are marked on the VNCs. The CAA has no power to stop wind farms being built.

The CAA's role is:

1. To determine whether the turbines will be a hazard to aircraft in navigable airspace, under Civil Aviation Rules, Part 77 *Objects and Activities Affecting Navigable Airspace.*
2. If they are, what marking or lighting they require, and
3. To publish information about them in *AIP New Zealand*.

If a wind farm is required to be lit, it does not mean that every single turbine will be. Generally, the highest turbines will be lit, along with selected turbines around the perimeter of the farm, no more than 1 NM apart. So making a forced landing at night inside a ring of lights 1 NM apart may not be the best plan! ■

Avoiding **Wirestrikes**

With a recent spike in wirestrike occurrences, we are using (with permission) some key tips from Robert Feerst's "Flying in the Wire and Obstruction Environment" training to highlight the dangers of operating at low level.

Robert Feerst is a leading wirestrike avoidance specialist in the United Sates, and his organisation, Utilities Aviation Specialists (www.helicoptersafety.com), runs courses all over the world. Robert will be delivering his course at the AIA Conference in July this year.

Human Limitations

Even people that work around wires all the time have struck them – and many knew the wires they struck were there. So why did they hit them? There are many reasons, outlined below, but critically you can only keep about seven items in your head at any one time. The location of particular wires will fall off your list at some point if you do not keep it at the forefront of your mind.

CRM

A critically important tool for avoiding wires is crew resource management (CRM).

When talking about wirestrikes, we define CRM as 'a formal, mandatory process that requires crew to share timely, flight-critical, information pertaining to all phases of the flight.'

Three key CRM actions that can save your life:

1. Recognising a potential problem or hazard – including when someone is losing their situational awareness.
2. Communicating the issue – clearly and in a timely manner – while making sure you are understood.
3. Reacting in the appropriate manner to remove yourself from the danger.

Complacency

Don't fall into this trap:

This is the third time you have been down this line in a week. It's just a long line of power lines, and the linesman on board is looking for faults. You are somewhat bored, so you set up a competition between you and the linesman, to see who can spot the fault first. Now you are good at this game, you suspect that your eyesight is a little better than his, so you are very focussed on this being an easy winner.

Suddenly out of the corner of your eye you see something – instinctively you haul back on the cyclic. As the helicopter staggers upwards, you feel it shudder as the skids just scrape over the wires you hadn't seen. You realise that millimetres saved your life.

As your heart rate returns to normal, you realise your almost fatal mistake. You were not concentrating on your own job – you were doing the linesman's job.

Don't get distracted – focus on what you are doing – even though it might be boring right now.

Interruptions are just as dangerous as boredom. How often have you had a phone ring while you were in the middle of a pre-flight inspection? It takes a while to get back to where you were before the interruption, doesn't it? Are you always sure you went exactly back to where you left that check?

The only safe way to ensure interruptions don't lead to omissions is to start back at the beginning. Every time.

The only safe way to ensure interruptions don't lead to omissions is to start back at the beginning. Every time.

Hardware

Hardware refers to: the power distribution system, the types of structures, the wires associated with particular structures, wire connection points, the insulators, and guy wires or stays.

Your knowledge of the hardware is critical. You must be able to forecast the location of wires, and to do that well you need to understand the hardware, and what it is telling you about the associated wires.

This is critical because relying on seeing the wire is deeply flawed. There are so many ways that this will fail.

Never assume you are seeing all of the wires until you have 'read all the hardware' in your area of operation.

A good illustration of the need to keep looking for structures. Even though the single wire is easily seen, it is harder to see the wire between the poles to the right.

Even when you are not flying, look at the hardware, and practise reading it. Take the time to learn how the distribution system works and how it looks.

Looking for wires might be the only option because of hidden structures.

Reading hardware and the environment may help – but don't count on it. Use all of the other tools you have to forecast where the wires may be.

Stays

Be wary of stay wires, particularly down-stays secured to the ground, overhead-stays that run between two poles, and ascending-stays that are secured to valley walls or terrain higher than the poles.

Floating Earth Wires

Earth wires run between the tops of major structures. Their purpose is to attract lightning strikes, and keep them away from the main wires. These wires are thinner and much harder to see. They will sag like the power wires do, but to a lesser extent.

Whenever you are operating below earth wire level – slow down.

To avoid earth wires, cross over lines at the structures, not between them.

Constant Vigilance

Your most important task is to keep track of all the wires in your area of operation. This is not only your primary task, but also the primary task of all crew in the aircraft. If you keep the wires in sight, then they will stay in your consciousness, and not drop off your list.

Continued over »

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The three places to be particularly aware of wires are:

- below 500 feet agl over flat terrain
- over water – especially crossing rivers
- anytime you are operating below the ridge-tops.

Whenever anyone on board sees wires, in or near the flight path, they must identify them to everyone else on board.

This is a critical element of the CRM tools discussed above, and every crew member must be on the lookout for wires. Even if you see them yourself, say so, so that everyone can see and identify them – they might see ones you have missed.

Seeing one set of wires is not a cue to stop looking – keep up the search.

Reconnaissance

Complete a full 360 degree reconnaissance of the area you are about to operate in, plus get as much information as possible from your ground-based personnel or clients.

Once you have landed, make sure you do a reconnaissance from the ground, just in case you missed seeing any on the way in.

Don't be tempted to fly low-level outside the area you have already checked, to get back quicker, or 'take a quick look at something'.

If you do choose to do this, you need to climb to a safe height and conduct a reconnaissance of the new area.

Structures

Many tall structures have guy wires that can extend great distances away from the structure and are particularly difficult to see. Keep well clear of the airspace around any tall tower.

Power

Be suspicious of any structure that uses power. Power is often supplied via an underground cable – but not always. Be especially careful of single wires strung around farm buildings. They are particularly hard to see, and can also be attached to hidden structures.

Be positive in how you ask people, such as farmers or landowners, about wires or hazards. Use phrases like, "where are the wires around here?" and, "how do these structures get their power?"

Illusions

There are four ways to tackle illusions:

- know that illusions exist
- keep the structures and hardware in sight
- slow down, and
- constantly focus and refocus your eyes.

A typical single wire strung around farm buildings.

Background Changes

Any changes in the background can drastically affect your ability to see wires.

The colour and complexity of the background has a significant effect. A complex background, colours that are similar to the wires, and even the colour of the wires themselves, may reduce your ability to distinguish wires from the background.

Whenever you move the aircraft relative to a line of wires or a line of wires changes direction relative to you, your ability to see those wires changes dramatically.

When you move in relation to wires, it changes the relative position of the sun, the colour contrast with the background, your distance from the wires, and the brightness of the wire and its background. Any changes in these elements affect your ability to see wires, and to keep them in sight.

As wires turn corners, go uphill or downhill, they are effectively changing in relation to the background, and will therefore change your ability to see them.

Light

Even a small change in light intensity affects your ability to see wires.

Atmospheric changes, such as changes in sun angle, pollution, mist, precipitation, glare, haze, and even bugs on the windscreen, can make wires disappear in front of your eyes. Bugs will encourage your eyes to focus on the windscreen, and not at a distance – remember the guideline above for dealing with illusions – constantly focus and refocus your eyes.

Blue sky does not necessarily give you an advantage when it comes to seeing wires. Just because it is a clear day does not mean it improves your chances of seeing wires. It still depends on all the factors discussed above.

Distance Judgement

Judging your distance from wires by reference to the wires will not work. If you try this, you will be subject to a number of illusions, and they fool even the most experienced crews.

Latticework Structures

From the right angle – or wrong angle as the case may be – latticework structures disappear against busy backgrounds. Even though they can be large structures, they can still do a disappearing act – keep them on your list, along with the wires.

This latticework structure is easily seen in this situation, but note the guy wires and connecting wire heading off to the right.

Operators

The best way to protect yourself, and your organisation, from wirestrikes is to set and follow appropriate operating procedures that specify the standards your organisation will operate to, and how all your employees will behave. There is great benefit in establishing an in-house wire strike prevention and refresher programme.

Developing and maintaining good working relationships with your clients is critical to ensure you get as accurate information as possible about the location of wires in your operating area.

Attending courses like Robert Feerst's is also important for all of your employees, even those that work on the ground. ■

Blue sky does not necessarily give you an advantage when it comes to seeing wires.

Be suspicious of any structure that uses power.

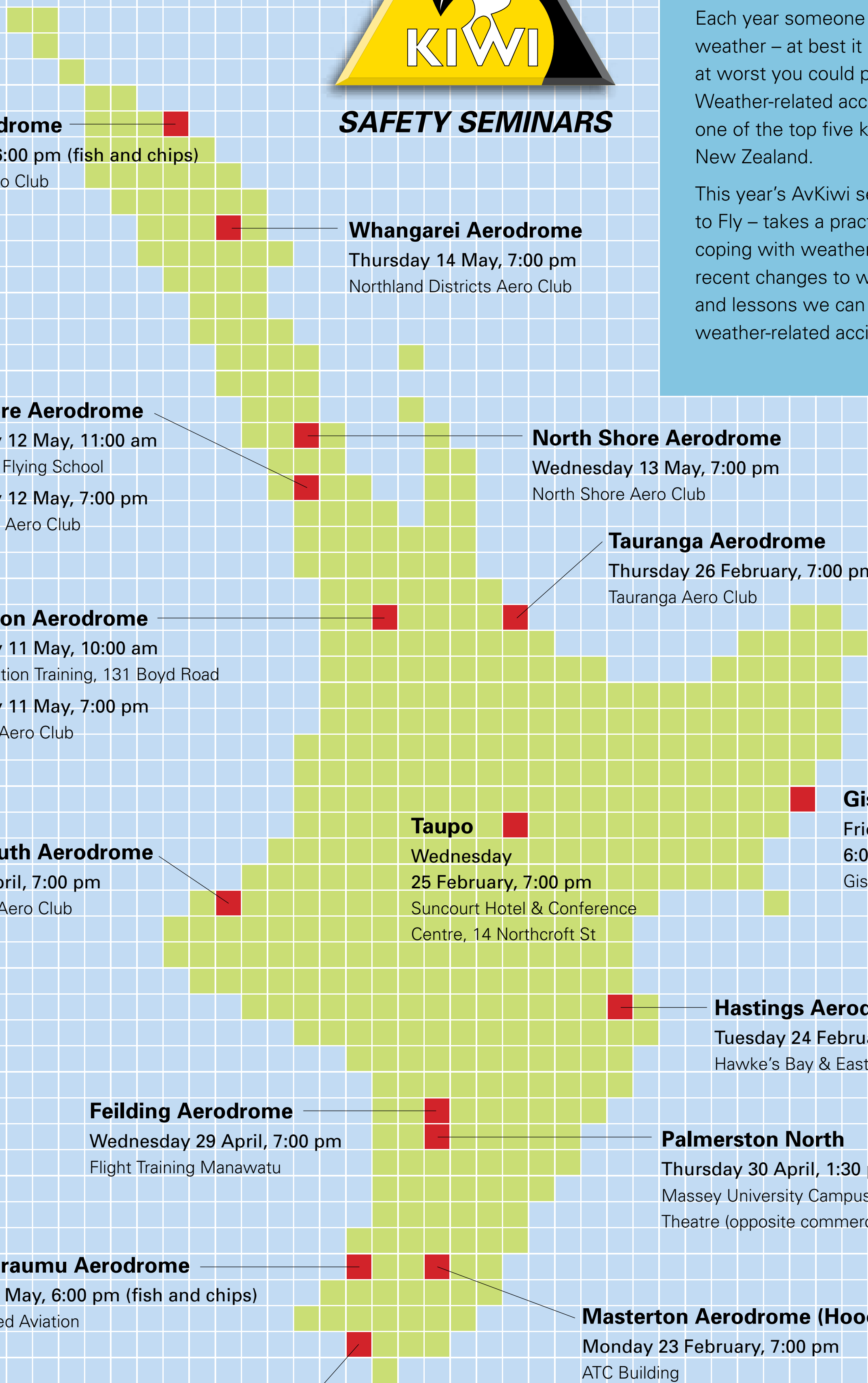
Weathe

Each year someone is caught out by weather – at best it leads to a scare – at worst you could pay with your life. Weather-related accidents remain one of the top five killers of pilots in New Zealand.

This year's AvKiwi series – Weather to Fly – takes a practical look at coping with weather. It includes recent changes to weather reporting, and lessons we can all learn from a weather-related accident.

AV KIWI

SAFETY SEMINARS



Kerikeri Aerodrome
Friday 15 May, 6:00 pm (fish and chips)
Bay of Islands Aero Club

Whangarei Aerodrome
Thursday 14 May, 7:00 pm
Northland Districts Aero Club

Ardmore Aerodrome
Tuesday 12 May, 11:00 am
Ardmore Flying School
Tuesday 12 May, 7:00 pm
Auckland Aero Club

North Shore Aerodrome
Wednesday 13 May, 7:00 pm
North Shore Aero Club

Tauranga Aerodrome
Thursday 26 February, 7:00 pm
Tauranga Aero Club

Hamilton Aerodrome
Monday 11 May, 10:00 am
CTC Aviation Training, 131 Boyd Road
Monday 11 May, 7:00 pm
Waikato Aero Club

Gisborne Aerodrome
Friday 27 February,
6:00 pm (fish and chips)
Gisborne Aero Club

Taupo
Wednesday
25 February, 7:00 pm
Suncourt Hotel & Conference Centre, 14 Northcroft St

New Plymouth Aerodrome
Tuesday 28 April, 7:00 pm
New Plymouth Aero Club

Hastings Aerodrome (Bridge Pa)
Tuesday 24 February, 7:00 pm
Hawke's Bay & East Coast Aero Club

Feilding Aerodrome
Wednesday 29 April, 7:00 pm
Flight Training Manawatu

Palmerston North
Thursday 30 April, 1:30 pm
Massey University Campus, Japanese Lecture Theatre (opposite commercial complex)

Paraparaumu Aerodrome
Friday 1 May, 6:00 pm (fish and chips)
Associated Aviation

Masterton Aerodrome (Hood)
Monday 23 February, 7:00 pm
ATC Building

Wellington Aerodrome
Monday 27 April, 7:00 pm
Wellington Aero Club

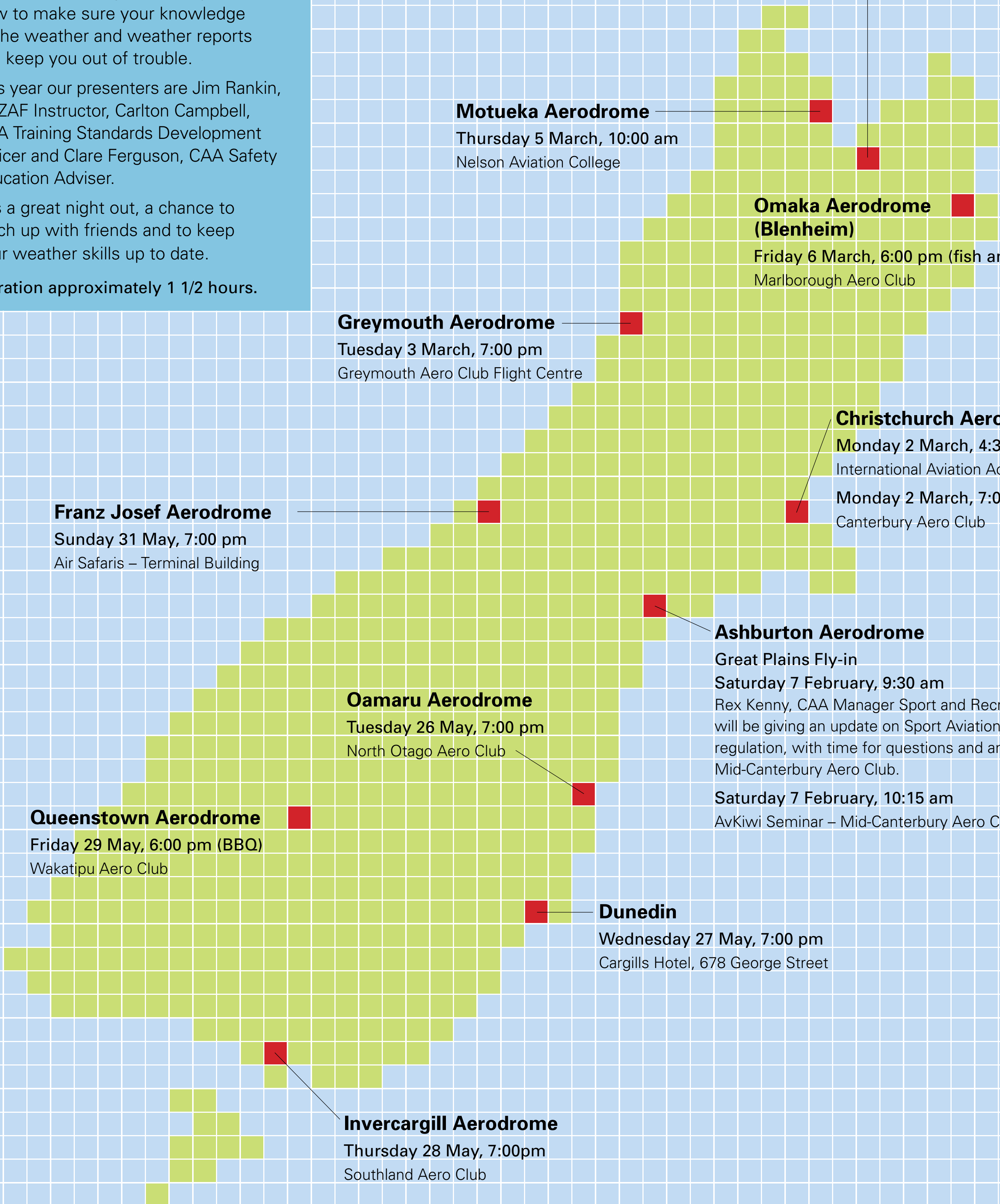
r to Fly

Come along and share your experiences, and get some tips on how to make sure your knowledge of the weather and weather reports can keep you out of trouble.

This year our presenters are Jim Rankin, RNZAF Instructor, Carlton Campbell, CAA Training Standards Development Officer and Clare Ferguson, CAA Safety Education Adviser.

It is a great night out, a chance to catch up with friends and to keep your weather skills up to date.

Duration approximately 1 1/2 hours.



Nelson Aerodrome
Thursday 5 March, 7:00pm
Nelson Aero Club

Motueka Aerodrome
Thursday 5 March, 10:00 am
Nelson Aviation College

Omaka Aerodrome (Blenheim)
Friday 6 March, 6:00 pm (fish and chips)
Marlborough Aero Club

Greymouth Aerodrome
Tuesday 3 March, 7:00 pm
Greymouth Aero Club Flight Centre

Christchurch Aerodrome
Monday 2 March, 4:30 pm
International Aviation Academy

Monday 2 March, 7:00 pm
Canterbury Aero Club

Franz Josef Aerodrome
Sunday 31 May, 7:00 pm
Air Safaris – Terminal Building

Ashburton Aerodrome
Great Plains Fly-in
Saturday 7 February, 9:30 am
Rex Kenny, CAA Manager Sport and Recreation, will be giving an update on Sport Aviation regulation, with time for questions and answers. Mid-Canterbury Aero Club.

Saturday 7 February, 10:15 am
AvKiwi Seminar – Mid-Canterbury Aero Club.

Oamaru Aerodrome
Tuesday 26 May, 7:00 pm
North Otago Aero Club

Queenstown Aerodrome
Friday 29 May, 6:00 pm (BBQ)
Wakatipu Aero Club

Dunedin
Wednesday 27 May, 7:00 pm
Cargills Hotel, 678 George Street

Invercargill Aerodrome
Thursday 28 May, 7:00pm
Southland Aero Club

A complete list of seminars will also be on the CAA web site, www.caa.govt.nz, see “Seminars and Courses”.

Silence is **Golden**

The air you fly in may have remained unchanged, but chances are a lot has happened on the surface over the past few years.

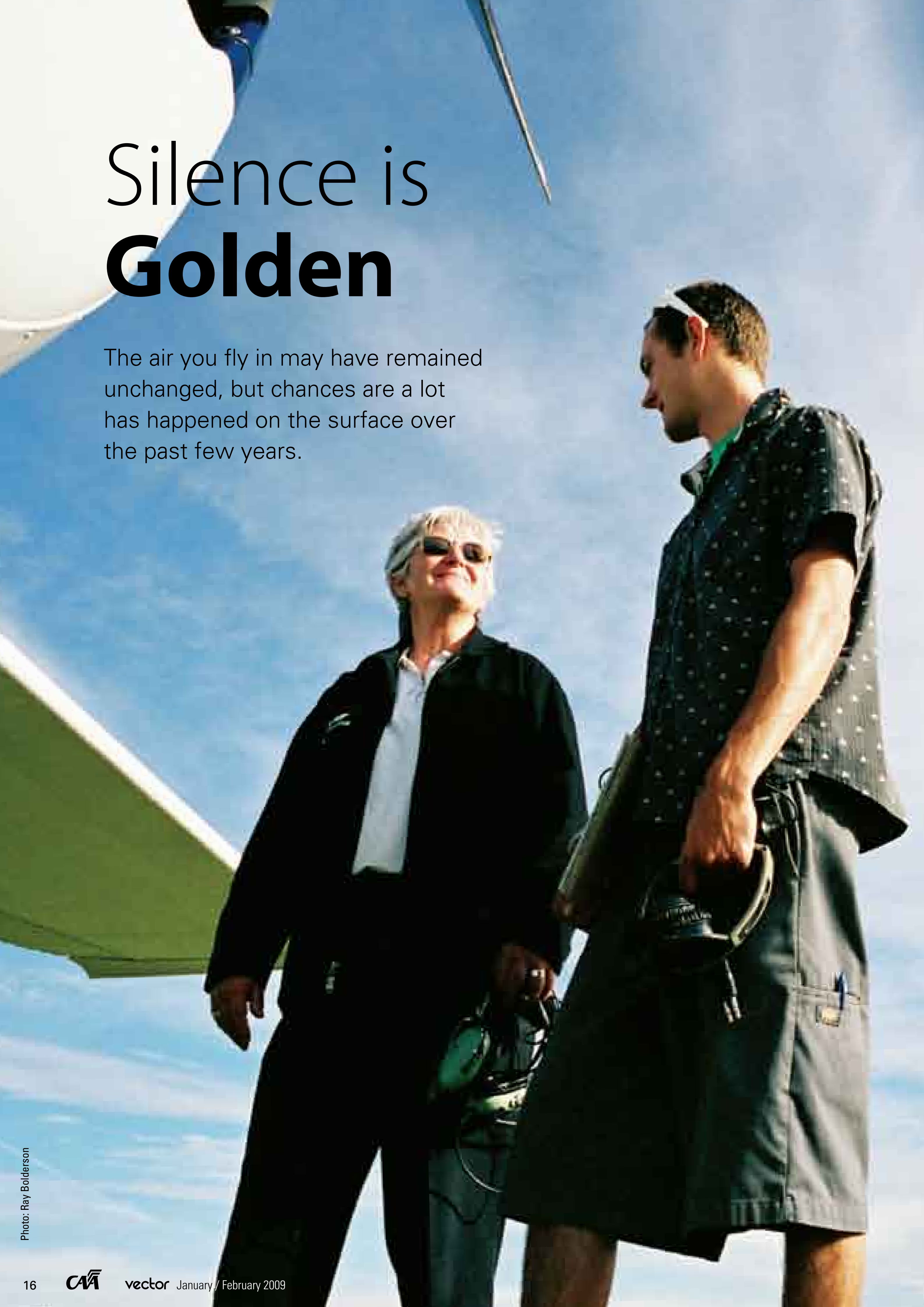


Photo: Ray Bolderson

What were once sparsely stocked paddocks are now neatly fenced lifestyle blocks. What was once a local airfield training a handful of pilots each year is now bulging at the seams with the biggest increase in flight training New Zealand has ever seen. What was once an undervalued slice of scenic reserve may now be a cultural treasure, the preservation of which is a top priority for vocal lobby groups.

Aviators must accept that non-aviators may no longer look up to the sky admiringly as we buzz past. Rather, they may well be formulating their letter of complaint.

The CAA receives about 150 noise complaints each year. Manager Fixed Wing, Merv Falconer, says these are a mix of formal complaints, and those relayed informally to the CAA's Aviation Safety Advisers.

"The CAA does not have powers to control aircraft noise. Although minimum heights are restricted, noise levels are currently not directly covered by the Civil Aviation Rules. Noise pollution is an issue that has not yet come to a head, but I would say that day is fast approaching.

"Pilots need to be more aware of the effects that aircraft noise has on the community they collectively fly over. Perhaps then the CAA and the aviation community can avoid the need for any specific legal requirements," Merv says.

"Pilots should recognise that the current regime allows aircraft a relatively free reign in many areas. But that is no longer something that should be taken for granted. For some, aviation noise pollution is a serious issue."

Penny Mackay is Chief Executive of Nelson Aviation College, which trains around 150 students each year from its Motueka base.

The flying school takes complaints about its noise seriously, and has developed several procedures to try to lessen the impact on the nearby township and outlying areas. It uses eight training areas, and instructors check the daily flight record to ensure there is only one aircraft in each area at a time, and that no one area is overused.

Some training areas have been tailored to meet the requirements of specific groups within the community. The school has shaved the edge off one low flying zone to keep aircraft further away from a small beach community, and students are required to head seaward while applying power to climb. In another area, the school requires its own minimum height of 800 feet agl, rather than the legally prescribed 500 feet agl.

"We teach our students to be thoughtful about their noise. Why accelerate over the top of a house after practicing a forced landing when you can fly over to one side? And don't transit over the township when you can take a slight detour around the edge," Penny says.

"You have to acknowledge that aircraft are noisy, but there are some things you can do."

The school engages with each complainant.

"I have had the whole range, from people making reasonable comments to verbal abuse and physical threats," Penny says.

"I examine every complaint, and talk to the pilot concerned. I am totally open and honest. If we have got it wrong, we apologise and let the person know what we are going to do about it. I also invite people to visit and see how we are set up and what we are trying to do. If you are receiving threats though, that should be handled by the police."

She says better understanding of aviation does help.

"Stalling scares people. They hear the engine suddenly cut, and that's worrying. We make sure students don't all go and practice stalls or forced landings in the same place."

Inversion layers and lower cloud bases will also increase aircraft noise.

"We also limit night flying, so people aren't sightseeing over the township after 9 pm at night."

The Helicopter Association International's Fly Neighborly (sic) programme advises similar precautions. It says pilots should fly higher wherever possible. In general, aircraft noise halves with each doubling of height. An aircraft at 2000 feet will make roughly half the noise of an aircraft at 1000 feet.

The free programme (see below) also suggests lowering cruise speed near built up areas, and avoiding noise sensitive areas, such as cemeteries, parks, schools and scenic reserves. It suggests following high-ambient noise routes where possible, such as motorways, and provides type-specific advice for lessening noise levels from most commonly flown helicopters.

CAA Aviation Safety Adviser and A-category instructor, Murray Fowler, receives about 60 noise complaints each year from across the South Island.

"The larger single-engine piston aircraft around today are very noisy. Pilots need to consider using lower power settings and rpm, and flying as high as they can. In any potentially noise-sensitive area avoid prolonged circling, steep turns, or other manoeuvres that require higher power settings. Agricultural pilots need to be particularly sensitive. Remember that today's lifestyle block holders are not farmers. I often get calls about what turns out to be legitimate top dressing, or power line checking flights," Murray says.

"And be considerate to stock. If you are top dressing a property, ensuring adjacent property owners know you're coming could prevent prized stock destroying themselves against the fences."

CAA Manager Rotary Wing and Agricultural Operations, John Fogden, says although noise is unavoidable, varying approach direction, flying as high as possible, and making steep approaches, can lessen the irritation caused.

"A brief, loud noise is much less annoying than ongoing droning," John says.

Penny Mackay says Nelson Aviation College considers itself part of the community.

"We have to train pilots to have respect and be thoughtful. But if the community wants pilots, they have to put up with a certain amount of aviation noise.

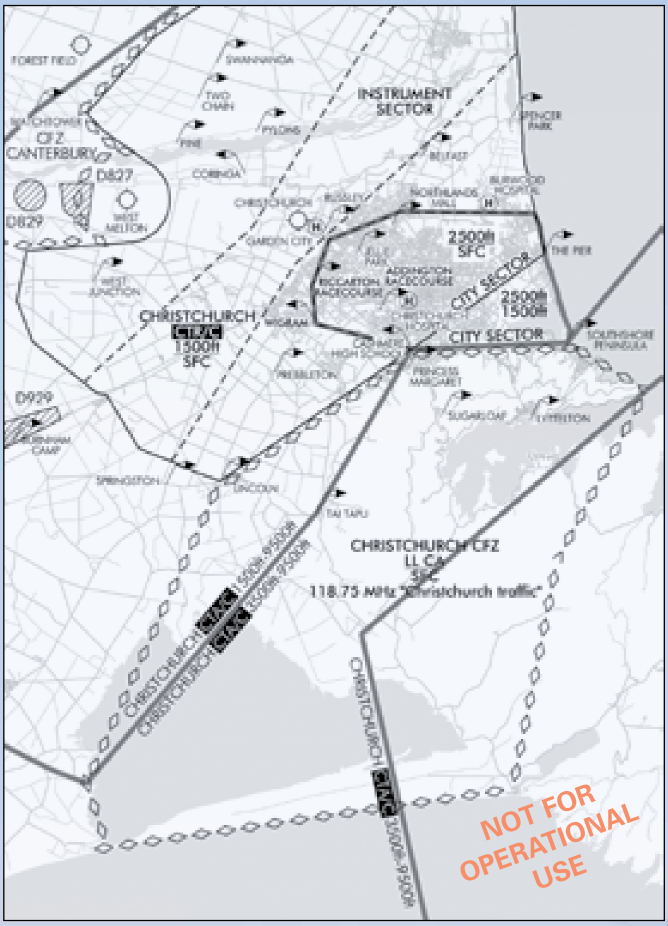
"Pilots do realise how noisy their aircraft are, they just don't always realise that some people don't like that noise. It's a bit like a V8 enthusiast. They know the cars are noisy, but they love it," Penny says. ■

Learn More

Helicopter Association International Fly Neighborly (sic) www.rotor.com.

Christchurch **Airspace Changes**

As a result of Wigram Aerodrome closing, significant airspace changes will come into effect 1 March 2009.



Wigram Aerodrome will become a Visual Reporting Point (VRP) called Wigram.

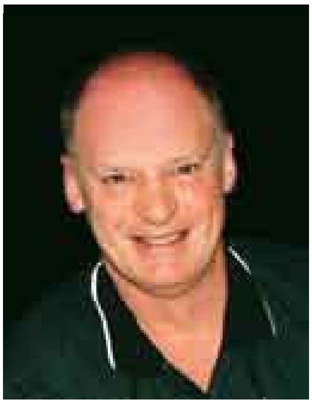
The area around Wigram (currently class G airspace) will become part of the Christchurch Control Zone (CTR). The southern boundary of the CTR will run from Lincoln to Cashmere High School VRP.

The western boundary of the CTR's City Sector is also changing. It will run from Cashmere High School to Wigram, then to Riccarton Racecourse.

The Selwyn Common Frequency Zone is disestablished and replaced with a much larger Christchurch Common Frequency Zone. The new CFZ will include Lyttleton Harbour, with the eastern boundary running from Godley Head to Mt Herbert then Birdlings Flat. The frequency for the Christchurch CFZ will be 118.75 MHz.

A new VRP, Addington Racecourse, will be established and the location of the Riccarton Racecourse VRP will move to be overhead the racecourse itself. Previously, the VRP was slightly to the south east of the racecourse.

These changes will be published in *AIP Supplement 09/2*, effective 12 February 2009, but will not appear on the Visual Navigation Charts until the next charts are printed and become effective in November 2009. ■



Jeremy Cook

CAA Airworthiness Inspector, Jeremy Cook, was killed in the Airbus A320 accident off the coast of southern France on 28 November 2008. He was one of seven persons on board the aircraft while the aircraft was engaged in an acceptance flight prior to coming back onto the New Zealand Register. Four other New Zealanders lost their lives on the flight – they were three engineers and a senior pilot from Air New Zealand. Jeremy was in France to issue the New Zealand Airworthiness Certificate to the aircraft on completion of all the certification requirements.

The Director of Civil Aviation, Steve Douglas, said the CAA staff were shocked and saddened to hear the news and extended the condolences of all staff to the Cook family at the time of their loss. He said that the CAA will provide all the moral and practical support that is required to help the Cook family in their time of need in coping with their loss.

Manager Aircraft Certification, Geoff Connor, said that Jeremy's loss has been a sad time for the Aircraft Certification Unit. "Jeremy was an aviation professional and a valued member of our team. He has had a long and interesting career in aviation and this knowledge, combined with his mature manner, made him particularly effective in upholding safety standards."

Jeremy joined the Civil Aviation Authority as an Airworthiness Inspector in April 2005. A Licensed Maintenance Engineer with an extensive background in aircraft and engine maintenance, his career includes time with Air Niugini in Papua New Guinea, Ansett New Zealand, and with the Christchurch Engine Centre. In his role at the CAA he travelled extensively, inspecting aircraft for entry into the New Zealand civil aviation system. Because of his previous work in industry and his CAA role, he was well known to many in the aviation industry. Although often working away from the office, he formed very strong relationships within the CAA.

The French authority responsible for technical investigations of civil aviation accidents and incidents, Bureau d'Enquêtes et d'Analyses (BEA), is leading the investigation of the accident, with a close interest being taken by the manufacturer and operators of Airbus aircraft. New Zealand has been offered observer status in the accident investigation process, and a representative from the Transport Accident Investigation Commission has travelled to France in this role. ■

New Products

Spin Avoidance and Recovery

When an aircraft spins, a stall occurs together with yaw, and self-perpetuating rotating forces develop. These forces keep the aircraft in the spin until positive and correct control inputs from the pilot stop them.

This new GAP (Good Aviation Practice) booklet explains the conditions that will encourage an aircraft to spin, and what you can do about them.

Under no circumstances should pilots deliberately enter a stall in the turn, an incipient spin, or a fully developed spin, unless they have received appropriate training from a qualified instructor in a suitable aircraft type, and at a safe height in a suitable location.

There is no universal spin-recovery technique that will work for all aircraft. This booklet outlines one of the most widely-used techniques. The booklet discusses unintentional spins – it is not a substitute for intentional spin training. The best line of defence is to avoid the spin in the first place.

The CAA gratefully acknowledges the assistance of the Tiger Moth Club of New Zealand in the production of this booklet.

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New **Standards**

The CAA is planning to introduce slow flight into the PPL and CPL syllabuses, and making two new requirements for first solo flight. These changes are expected to become effective 1 March 2009.

Slow Flight

During issue flight tests and BFRs, candidates will be required to demonstrate that they can maintain level flight at low speeds, and manoeuvre in various configurations at that speed. A change of direction from an established turn, to a turn in the opposite direction using medium angles of bank, will also be required, while maintaining a nominated altitude.

Slow flight will help students develop a feel for the aircraft controls, and build their knowledge of the rate and amount of control movement required when flying at lower airspeeds.

The introduction of slow flight testing will bring New Zealand into line with Australia, Canada, the United Kingdom, and the United States.

First Solo

Civil Aviation Rule 61.105 (a) states that a student must not fly an aircraft solo unless –

> "(3) the person has sufficient ability in reading, speaking, understanding and communicating in the English language to enable them to adequately carry out the responsibilities of a pilot-in-command of an aircraft."

The proposed acceptable means of compliance with rule 61.105 (a) will be to pass the Flight Radio Telephone Operator (FRTO) written examination, and have their English assessed, before first solo.

There are three ways in which students can satisfy the English proficiency assessment requirements:

1. Show that they have completed their secondary education in a New Zealand or Australian school, or the equivalent education in a country where the instructional language was English, or
2. Show they have been employed in New Zealand, Australia, the United Kingdom, Canada, or the United States, for at least three years, or
3. Pass a general English test set by one of the following independent testing centres:
   - Test of English for International Communication (TOEIC) www.pro-match.com/toeic
   - International English Language Testing System (IELTS) General Training Test, www.ielts.org
   - Test of English as a Foreign Language (TOEFL) www.ets.org/toefl

   The CAA have determined the minimum acceptable scores for each of these tests.

It is proposed that it will be the responsibility of the school's Chief Flying Instructor (CFI) to ensure that students fulfil one of these English language criteria, and pass the FRTO written examination, before going solo.

For more information, pending Advisory Circulars AC61-2 *Pilot licences and ratings – Student pilots*, AC61-3 *Pilot licences and ratings – Private pilot licence*, and AC61-5 *Pilot licences and ratings – Commercial pilot licence*, will be available on the CAA web site before their effective date. ■

Under Seat **Stowage**

A recent incident has highlighted the importance of keeping the area under your aircraft seat free from solid objects.

The occupants of an R22 helicopter were lucky that the area under their seats crumpled, and that nothing stored in the compartment interfered with that crumpling, when their helicopter landed heavily.

In the event of a crash or heavy landing, these seats are designed to progressively deform – crumple like a drink can – and absorb some of the impact forces, so that your body doesn't have to.

Placing heavy or solid articles under the seat may stop it doing its job. This is particularly important in small helicopters with this type of seat structure. The Robinson R22 manufacturer recommends leaving at least 5 inches of free space between whatever you have stowed under the seat and the seat squab – for this very reason. They also recommend that only light or soft objects be stored there, such as rotor blade tie downs, covers, and small first aid kits.

Some more recently designed light aircraft are required to have a specific degree of crash absorption, usually through seat deformation or some form of suspension. They often have limitations prohibiting anything being stowed under the seats that could interfere with the seat movement or suspension travel. Check the Pilot's Operating Handbook or Flight Manual for any restrictions concerning underseat stowage. ■

Reminder for **Mogas Users**

If you run an aircraft engine on motor gasoline (mogas), be aware that ethanol blended fuel is generally unsuitable for aviation use. Users of mogas are most likely in the sport and recreation, amateur-built, and vintage sectors of aviation.

Ethanol blended petrol is currently only available from the majority of Gull service stations in the upper North Island, and selected Mobil stations in Wellington and the lower North Island. This is a total of about 50 service stations, around four percent of service stations nationally.

All ethanol petrol blends are required to be labelled as such at the point of sale by the Engine Fuel Specification Regulations.

Adverse Effects

The ethanol/alcohol attracts, carries, and retains water. This can lead to a number of problems:

- The water may be hard to detect in your fuel system.
- Sediment traps (eg, in the fuel tank) can flood, plug filters, and restrict fuel flow.
- On engine shut down and storage, the water present can lead to corrosion on vital engine parts such as crank, main and rod bearings, as well as pins.
- The water can freeze in cold conditions, and from the carburation action.
- The water lowers the vaporization point of fuel, and could cause vapour lock.

Other problems associated with ethanol/alcohol are:

- The alcohol competes directly with the lubrication and, depending on your oil's ability to combat such, could cause engine damage.
- Alcohol is a solvent which could clean deposits in your fuel system and carry them into the filters or carburettors.
- Alcohol burns leaner and may cause higher exhaust gas temperatures (EGTs).

How to Detect

If you are unsure about the presence of alcohol in your mogas, the following test can be carried out.

Using a glass or chemical resistant plastic (such as TPX) container, mark ten equally spaced volumes.

Add one part water into the container to the first mark, and then add nine parts of mogas to the top mark. Shake thoroughly, let stand for 10 minutes or until the mogas is again bright and clear. Look at the apparent level of the line between the mogas and the water.

If alcohol is present in the mogas, the water will absorb it, and the amount of water will appear to increase, indicating the fuel should not be used in the aircraft. However, if the water level remains the same, no alcohol is present, and it can be used in the aircraft.

Summary

Do not use ethanol blended fuel in engines installed in aircraft. Watch for advisory notices at the service station. And if in doubt, test to see if you have an ethanol-blended fuel. The CAA has issued a Continuing Airworthiness Notice 28-001 regarding ethanol blended fuel. See the web site, www.caa.govt.nz, under "Airworthiness Directives". ■

RPL Update

Max Saunders now has a licence that matches the flying he does.

Getting his Recreational Pilot Licence (RPL) has meant that he can still fly standard aircraft like the Cessna 152 or 172, during the times of the day he wants and in the air space that he prefers. It also means that instead of doing a yearly medical as he used to for his Private Pilot Licence (PPL), he can now have a medical done once every two years for his RPL. No surprise then, that Max is happy with both his licence and the process and time it took to get one.

Max is now one of 65 RPL holders. Manager Personnel Licensing, John McKinlay, says that since the RPL was introduced to the aviation community, the CAA has received 86 applications for RPL licences. Sixty-five of these have been processed, and the remaining applications are in various stages of being processed. (Figures as at 12 December 2008.)

The RPL was introduced to the aviation community as a licence under Part 61 in May 2008, and was the result of the aviation community's request to address the problem of private pilots who are no longer able to meet the medical standard, or costs associated with the PPL, but want to continue flying standard category or special category certificated aircraft.

In the past, many pilots who failed to meet the Class 2 medical certificate standards, or found the specialist reports too costly, took up flying sport and recreational aircraft under the umbrella of the Part 149 certification system where the medical standards are less stringent. Some of these aircraft have very high performance, so were a major transition from what they were used to. Instead, by getting an RPL, these pilots can continue to fly the aircraft with which they are fully familiar.

When the licence first became available, a significant degree of non-compliance with the NZ Transport Agency guidelines for the issue of the medical certificate was noted, and this caused some delays.

In response, the CAA has introduced a review process to check that the guidelines are being adhered to, and this has improved turnaround times markedly. A review of the RPL issue process will take place in July 2009 to make sure it meets the objectives of the underlying policy.

If you are applying for an RPL, check the reminders on the application form to make sure that you send in complete information. More information on how to apply for an RPL can be found on the CAA web site, www.caa.govt.nz, see "Sport and Recreation". ■

Max Saunders in the Jabiru J160 he built.

Sitting Pilot Exams?

If you're sitting your pilot exams, you need to study the correct syllabus – all pilot syllabuses are contained in the Part 61 Advisory Circulars (ACs). They are often under review, so you need to study the syllabus that will be effective when you sit your exam.

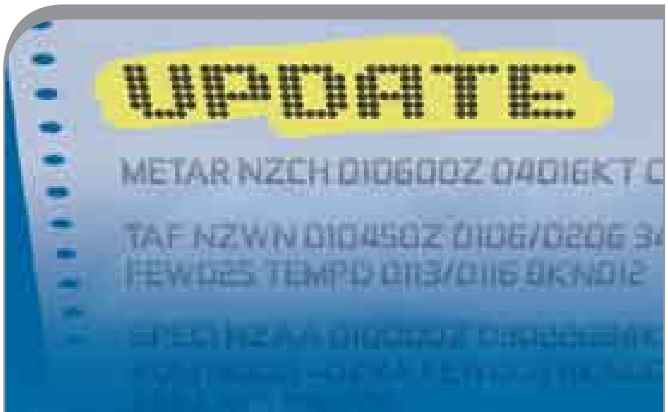
To help you sort this out, we've made a new web page called, "Pilot Syllabus Assistance".

The "Pending" section shows syllabuses that are coming up, with their effective dates.

The "Archive" section shows syllabuses that are no longer current, but you may need to refer to them when addressing your Knowledge Deficiency Reports (KDRs) if the syllabus has changed since your exam.

There's a link to all the current syllabuses in the ACs, and syllabuses under consultation are also on the page with closing dates for comments.

You can see the new web page on the CAA web site, www.caa.govt.nz, under "Pilots – Pilot Syllabus Assistance".



Time Format Changes in TAFs

Following on from our recent article on the changes in the TAFs issued for AA, WN and CH, MetService have now standardised the time format in all TAFs – as you will no doubt have noticed.

The new format brings New Zealand TAFs into line with international standards, gives a little more information, and makes it easier to read.

The new format is ddhh/ddhh, two digits for the day and two digits for the hour, for example 0120/0211, which decodes as 1st of the month at 2000 until 2nd of the month at 1100 UTC.

This will be standard for all TAF validity periods, including validity periods for BECMG, PROB and TEMPO.

The time format used in TREND forecasts – those forecasts added to the end of METAR and SPECI – will continue to be in hhmm format, two digits for the hour and two digits for the minute, for example TEMPO FM2300, which decodes as temporary fluctuations from 2300 UTC.

Chief Pilot/Senior Person Workshop

The CAA will be holding a Chief Pilot/Senior Person Workshop at Tauranga, 9 and 10 March 2009.

The aim of the workshop is to equip people in those positions with the knowledge, the tools, and a full awareness of the responsibilities, of being a 'senior person responsible for flight operations'.

The workshop covers the Civil Aviation Act 1990, rules and operator exposition as they apply to the Chief Pilot/Senior Person role. It covers the practical aspects of SOPs, records and rosters, crew and staff management, training and checking responsibilities, safety culture and professionalism in the aviation environment.

The workshop is aimed at persons with Senior Person responsibilities in organisations holding a Part 119/135 Air Operators Certificate. It also has relevance to Part 137 agricultural Chief Pilots and to Chief Flying Instructors.

The cost of attending the Workshop is $100 per person.

An application form for the workshop is on the CAA web site, **www.caa.govt.nz**, see "Seminars and Courses".

Part 139 Review

Part 139 *Aerodromes – Certification, Operation and Use* is under review. The scope statement has been published on the CAA web site, www.caa.govt.nz (see "Rules Development – Rules Project Scope Statements").

Background

When the rule was first written, there were few regular scheduled services with smaller aircraft. These types of services are now the norm at many aerodromes, and safety oversight of aerodromes being used for these operations is necessary.

Multiple levels of aerodrome certification will be considered, including certification of aerodromes with air transport operations using aircraft with 30 or less passenger seats, and possible registration of aerodromes without regular air transport operations.

Objective

The objective of this project is to review Part 139 by addressing the issues raised in the recent ICAO safety audit of the CAA, issues raised by industry, and by updating the rule in a manner that achieves the greatest compliance with ICAO Annex 14 specifications for aerodromes.

The review will ensure that safety management programmes are established and implemented throughout the aerodrome environment. It will also provide a regulatory structure for the provision of Air Traffic Services that is consistent with current CAA policy. All standards will be moved to Appendices of the rule.

Runway End Safety Areas and security requirements are not part of this project. By the time you receive *Vector*, a Project Working Group will have been formed to provide technical and specialist input as the Rule Design and NPRM are prepared.

For a better understanding of the steps involved, see our booklet *The Rule Development Process* on the CAA web site, or order a copy, email: info@caa.govt.nz.

For more information, contact Rules Project Specialist, Mike Shouse, email: shousem@caa.govt.nz. ■

How to Get Aviation Publications

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).

AIP New Zealand

AIP New Zealand is available free on the internet, 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.

Pilot and Aircraft Logbooks

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

Aviation Safety & Security Concerns

Available office hours (voicemail after hours).

0508 4 SAFETY
(0508 472 338)
info@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)

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

Planning an Aviation Event?

If you are planning an event, large or small, such as an airshow, air race, rally, or major competition, the details should be published in an *AIP Supplement* to warn pilots of the activity.

The published cut-off dates for the AIP are listed right, but you must advise the CAA ***at least one week*** before those dates, to allow for inquiries and processing. Note that, even if you have applied to the CAA for an aviation event authorisation, this does not automatically generate an *AIP Supplement* or airspace request.

Email the CAA, aero@caa.govt.nz. Further information on aviation events is in AC91–1.

Effective Date	***Cut-off Date With Graphic***	***Cut-off Date Without Graphic***
9 Apr 09	26 Jan 09	2 Feb 09
7 May 09	23 Feb 09	2 Mar 09
4 Jun 09	23 Mar 09	30 Mar 09

Accident Briefs

More Accident Briefs can be seen on the CAA web site, www.caa.govt.nz.
Some accidents are investigated by the Transport Accident Investigation Commission, www.taic.org.nz.

ZK-TZJ Robin R2120 U

Date and Time:	26 Aug 07 at 16:00
Location:	Gammack Range
POB:	2
Injuries (Fatal):	nil
Injuries (Serious):	2
Injuries (Minor):	nil
Damage:	Destroyed
Nature of Flight:	TRAINING DUAL
Pilot Licence:	CPL (Aeroplane)
Pilot Age:	27 yrs
Flying Hours (Total):	1079
Flying Hours (on Type):	581
Last 90 Days:	145

The flight from Christchurch to Mount Cook Aerodrome was being completed as part of an aero club South Island trip. On board were the Category B instructor and the PPL(A) student. The intention was to give the student dual instruction as an introduction to operating in a mountainous environment. The flight had been operating in mountainous terrain north of a line Christchurch-Mount Cook, and several exercises were completed including ridge crossing, operating in valleys, turns in valleys, and the assessment of updraughts and downdraughts. The flight then headed south and began operating in the Gammack Range area. It entered a valley system where further turns were completed. Another turn was commenced to head back down the valley; during this manoeuvre the instructor realised that the aircraft was sinking with decreasing airspeed and becoming close to terrain. He took control of the aircraft and applied full power, endeavouring to complete the turn. Seconds after the instructor took control, the aircraft hit the side of the valley. Both instructor and student were injured, and the aircraft was destroyed.

CAA Occurrence Ref 07/3072

ZK-IMV Robinson R44 II

Date and Time:	21 Jan 08 at 12:00
Location:	Fernburn
POB:	1
Injuries (Fatal):	nil
Injuries (Serious):	nil
Injuries (Minor):	nil
Damage:	Substantial
Nature of Flight:	PRIVATE OTHER
Pilot Licence:	CPL (Helicopter)
Pilot Age:	29 yrs
Flying Hours (Total):	3170
Flying Hours (on Type):	450
Last 90 Days:	90

The helicopter was lifting off from a valley floor in the Fernburn area when a tail wind gust was encountered, and the tail boom struck the ground.

CAA Occurrence Ref 08/253

ZK-EVD Piper PA-38-112

Date and Time:	22 Jan 08 at 07:45
Location:	Palmerston North
POB:	1
Injuries (Fatal):	nil
Injuries (Serious):	nil
Injuries (Minor):	nil
Damage:	Substantial
Nature of Flight:	TRAINING SOLO
Pilot Age:	18 yrs
Flying Hours (Total):	55
Flying Hours (on Type):	55
Last 90 Days:	45

The aircraft apparently lost power on takeoff, stalled and veered left and off the grass runway. Following a heavy landing the nosewheel collapsed and aircraft came to rest 50 metres further on. The pilot was not injured, but the aircraft received major damage to the nosewheel, engine and propeller.

CAA Occurrence Ref 08/159

ZK-DLQ NZ Aerospace FU24-950

Date and Time:	03 Apr 08 at 13:30
Location:	Opotiki
POB:	1
Injuries (Fatal):	nil
Injuries (Serious):	nil
Injuries (Minor):	nil
Damage:	Substantial
Nature of Flight:	AGRICULTURAL
Pilot Licence:	CPL (Aeroplane)
Pilot Age:	56 yrs

The aircraft was taking off from a farm strip when it was caught in a downdraught as it crossed a small gully. Despite the pilot initiating a jettison of the load, the aircraft continued to sink and struck a fence. The impact caused a main undercarriage leg to fold rearwards. The pilot flew on to Opotiki and made a successful landing.

CAA Occurrence Ref 08/1400

ZK-ECF Jodel D.11

Date and Time:	26 Feb 08 at 17:30
Location:	Towai North
POB:	2
Injuries (Fatal):	nil
Injuries (Serious):	nil
Injuries (Minor):	nil
Damage:	Substantial
Nature of Flight:	PRIVATE

On takeoff a slight tailwind was experienced, and the aircraft veered off and hit a fence. The wings broke off.

CAA Occurrence Ref 08/759

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.

Key to abbreviations:

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

Aerospatiale AS 355 F1

Wiring Loom

Part Model:	AS 355
Date:	01 Aug 08
Part Manufacturer:	Eurocopter
ATA Chapter:	6240

It was reported that the rotor rpm horn was sounding intermittently. Maintenance investigation found chafing of the wiring loom as a result of contact with the closed engine cowl. The loom was repaired and repositioned to prevent further chafing.

CAA Occurrence Ref 08/3335

Alpha R2160

'G' Switch

Part Model:	ME406
Date:	16 May 08
Part Manufacturer:	ARTEX
ATA Chapter:	2560
TTIS Hours:	893

During the 12-monthly inspection, the 'G' switch was found to be inoperative. All other functions operated satisfactorily. Something loose was noted inside the unit. The unit was returned for warranty action. Replacement ELT fitted. A check of all other aircraft maintained by the maintenance organisation will be made as soon as possible to check for other occurrences of this defect.

CAA Occurrence Ref 08/2160

Britten-Norman BN2A-26

Magneto

Date:	28 Apr 08
ATA Chapter:	7410

While in the cruise, the right engine lost power. The engine restored itself after approx 5 seconds but repeated again soon after. Oil pressure and temperature indications were also noted to be fluctuating. The engine was shutdown and an uneventful landing was made at a nearby aerodrome. Maintenance investigation found that a magneto on the right engine had suffered an internal failure, which caused intermittent operation. The magneto was replaced. The pressure and temp indications were considered to be related to the magneto failure; the engine instruments were inspected during a scheduled check.

CAA Occurrence Ref 08/2153

Cessna 152

Carbon Monoxide Detector

Date:	27 Jun 08
Part Manufacturer:	Aviation Performance Parts
Part Number:	QE11-01

While in the climb, it was noticed that the CO detector had changed colour, indicating the presence of Carbon Monoxide in the cabin. The pilot returned and landed safely. Maintenance investigation revealed that a new CO detector was fitted during a recent 100-hr inspection. After release, the detector changed colour. Full inspection and ground runs were carried out satisfactorily. The detector changed to a non-uniform colour shade, and does not return to yellow. It is suspected that chemical contamination is coming from the adhesive used to stick the detector on. A new detector was fitted, with no further defects.

CAA Occurrence Ref 08/2660

Diamond DA20-C1

Fuel System

Part Model:	DA20-C1
Date:	04 Jul 08
Part Manufacturer:	Diamond
ATA Chapter:	7330

After touching down at Tauranga, the throttle was smoothly applied to full power for a touch-and-go – at which point the engine stopped. A restart on the runway was unsuccessful. Rescue Fire Service assisted in removing the aircraft off the seal runway. A visiting Diamond engineer was sent to investigate the problem. The fuel pressure was adjusted, and the aircraft was flown back to home base. On return the fuel pressure was re-checked, but no defects were found.

CAA Occurrence Ref 08/2831

Hughes 369HS

Pitch Control

Part Model:	369HS
Date:	30 Apr 08
Part Manufacturer:	Hughes
ATA Chapter:	6720
Part Number:	300H1800-501

After completing the 300-hour regrease of the pitch control bearings, and while attempting to tighten the bearing nut, the threaded shaft sheared off. A visual inspection revealed that the shaft appeared to have been cracked for some time. The component was returned to the maintenance provider, who commented that he thought this was an isolated occurrence, possibly due to previous over-tightening of the nut or damage in the aircraft's history. CAA enquiries with other helicopter engineers did not find any other similar occurrences of this nature, and a positive cause for the failure could not be established.

CAA Occurrence Ref 08/1792

PHOTO COMPETITION

Get your cameras out for summer and take some stunning aviation photos!

CAA
CIVIL AVIATION AUTHORITY OF NEW ZEALAND

You can then enter your best shots in our competition. There will be 12 photographs selected to feature in the 2010 CAA Calendar (yes, folks, that's the prize – fame but no fortune).

Virtually anyone can enter – just make the shots digital – and give us the rights to use them in our publications, and that's all there is to it.

In selecting the 12 winners, we'll be trying to represent the depth and breadth of the whole aviation community in New Zealand. That's from airliners to paragliders, and not forgetting aerodromes, Air Traffic Control, and engineering.

Here's a great opportunity to showcase your company – enter your publicity shots.

Conditions of Entry:

1. Each entrant can submit as many photographs as they choose.
2. The entrant can be anyone (including professional photographers), but they must be the photographer of the image submitted and hold all rights for that image.
3. All photographs submitted must illustrate some aspect of New Zealand aviation activity. There will be a preference for photographs of aircraft of different categories in the air, but we welcome photographs showing other activities, such as engineering and air traffic control. The photographs can be of an overseas aircraft providing the carrier holds a New Zealand certificate, eg Part 129.
4. All entries must be in digital format, as Tiff (preferably), or Jpeg files.
5. All entries must be of sufficient quality to be printed A4 size (to the edges) at 300 dpi.
6. For all entries, the entrant gives the Civil Aviation Authority of New Zealand rights to reproduction of the photograph in print or electronic media (this includes the World Wide Web), worldwide, for all time.
7. Entries will only be accepted by post on CD or DVD disks, and must be received by the CAA no later than 1 June 2009. Send, together with your contact details (post, phone, email), to:

   Photo Competition,
   Civil Aviation Authority,
   P O Box 31-441,
   Lower Hutt 5040.
8. By submitting a photograph, entrants acknowledge understanding of, and acceptance of, these Conditions of Entry.
9. The judges decision is final and no correspondence will be entered into.