September / October 2008

VECTOR

POINTING TO SAFER AVIATION

Helicopters Fight Frost

Risky, Tight, Low – Circling Approaches

Flight Training Growing Pains

Use of Safety Information

CAA
CIVIL AVIATION AUTHORITY OF NEW ZEALAND

VECTOR

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Flight Training Growing Pains

The number of students training for commercial licences has increased from 300 to 800 in the past three years. Planning is underway to cope.

In this issue...

Cover (and pages 8, 9): Thanks to the Wairarapa winegrowers who allowed us to photograph their vineyards – Matahiwi, Craggy Range, and Te Hera. (These vineyards do not necessarily use helicopters for frost protection.)

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New Zealand Government

Risky, Tight, Low – **Circling Approaches**

The circling approach is one of aviation's most risky procedures, and probably the most difficult manoeuvre an IFR pilot must carry out.

What is a Circling Approach?

There are two different types of instrument approach, the straight-in approach and the circling approach. A straight-in approach is where the centreline of the runway you will be landing on is straight ahead of you at the end of the instrument approach (within +/– 30 degrees for Category A and B aircraft, or within +/– 15 degrees for Category C and D aircraft). A circling approach, on the other hand, while still an IFR procedure – requires several turns to visually manoeuvre the aircraft into a position for landing.

There are several reasons why circling approaches are flown. Firstly, they enable pilots to land into wind when there is no straight-in approach procedure for the into wind runway. Even when there is a straight-in approach, it may be preferable to fly an alternative approach and circle due to the wind strength, terrain, and resulting turbulence you would encounter on the straight-in approach. Palmerston North is a good example of this. A circling approach may also be necessary due to ATC requirements. The Woodbourne VOR/DME RWY 06 approach conflicts with arrival and departure procedures at Nelson, so ATC prefer the VOR/DME RWY 24 approach be flown, circling for 06. Finally, a circling approach may be the only option at some aerodromes unless you have a GNSS endorsement on your instrument rating, for example, Paraparaumu.

Circling approaches are a challenging manoeuvre. They require a quick transition from instrument flight, focused inside the cockpit, to a visual procedure. They are conducted low to the ground (often lower and tighter than a normal visual circuit), and may be in bad weather conditions. These risks need to be managed.

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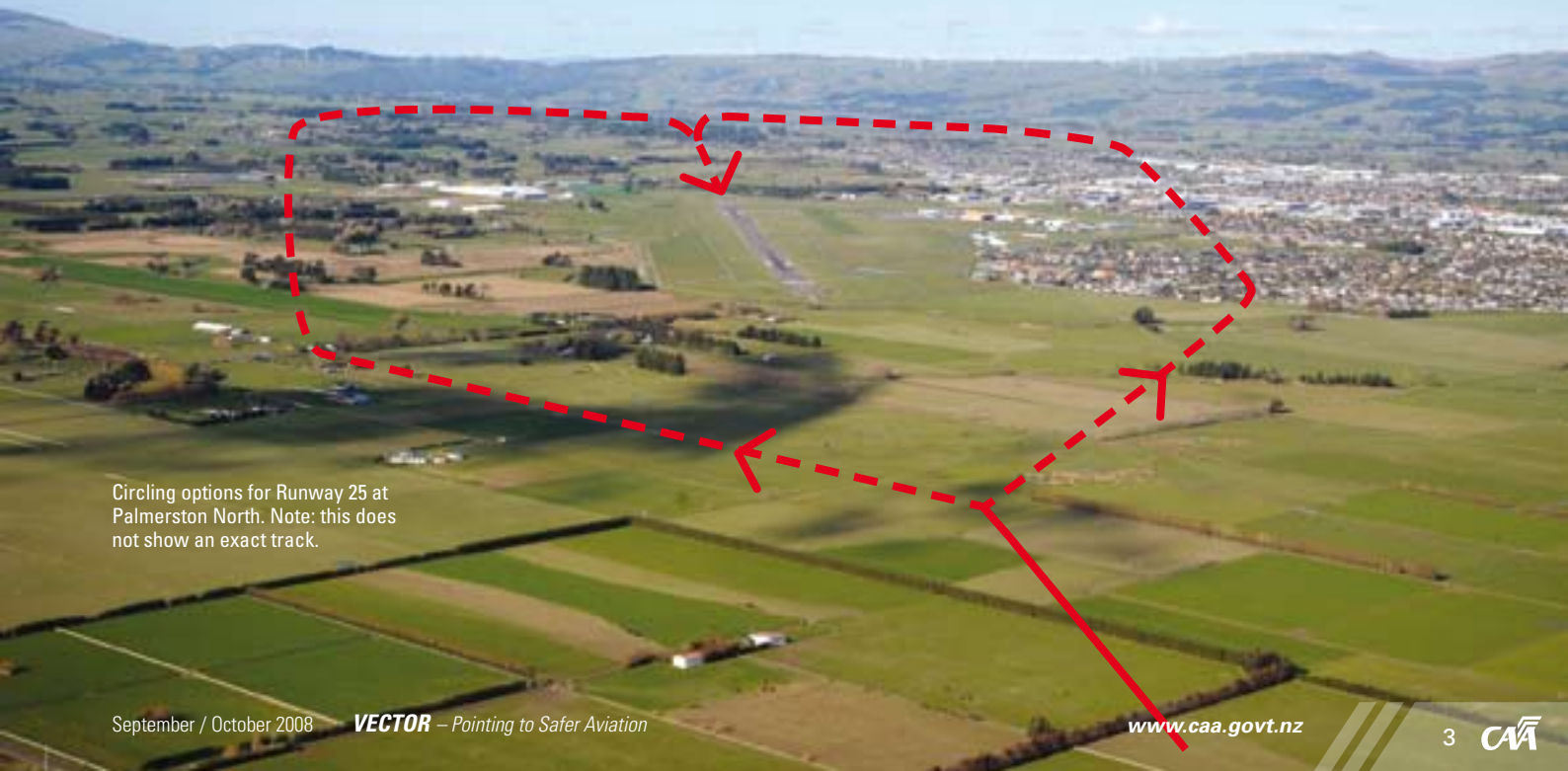
> Circling approaches are challenging. They require a quick transition from instrument flight to visual manoeuvring, and are conducted low to the ground, often in bad weather conditions.



Circling options for Runway 25 at Palmerston North. Note: this does not show an exact track.

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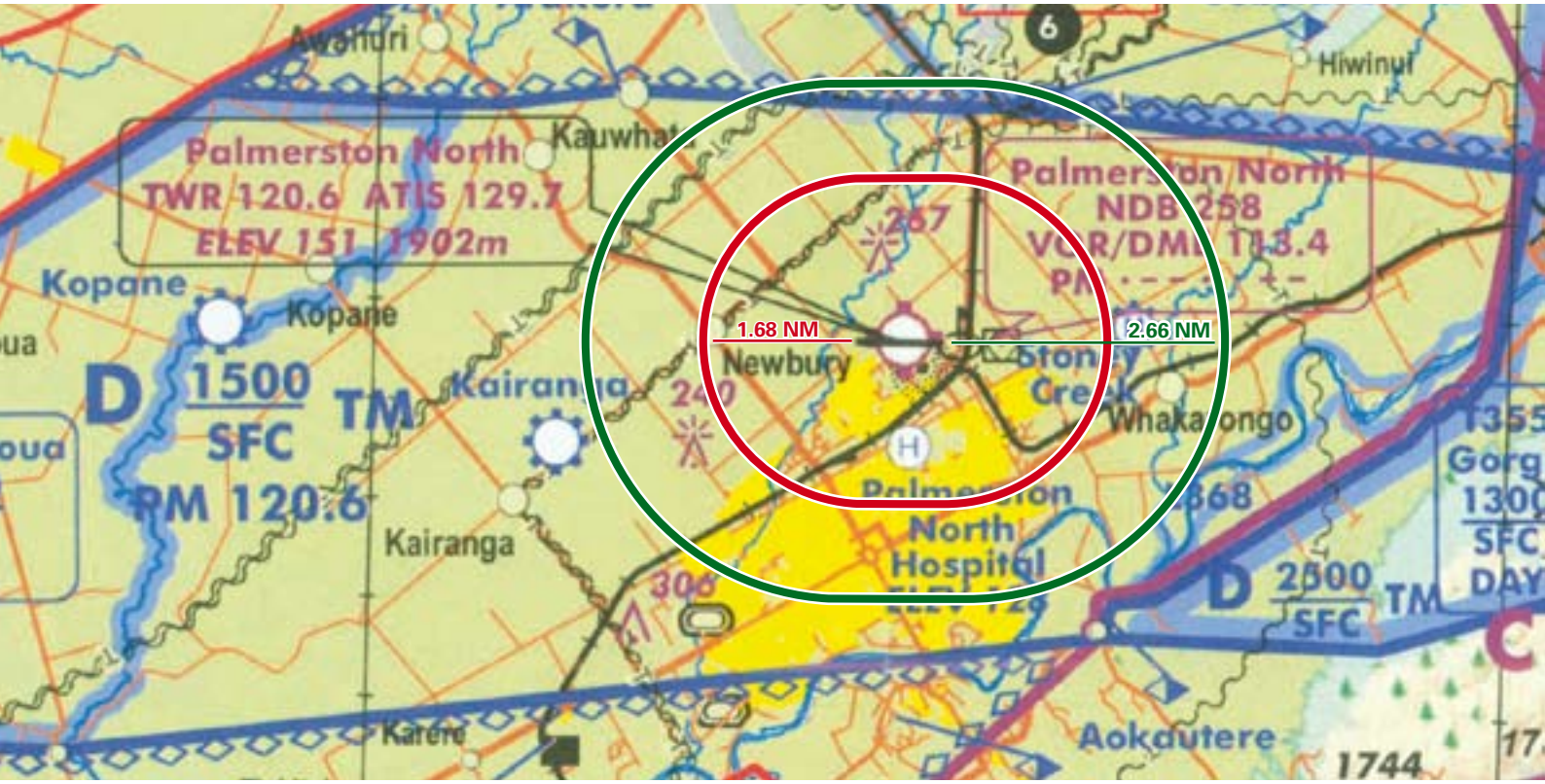
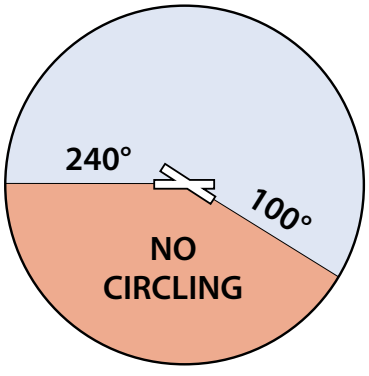


The area bounded by red is the Category A circling area, and the area bounded by green is the Category B circling area at Palmerston North.

Safety Protections

Circling can only be performed within a specified boundary to ensure obstacle clearance. Always stay within the circling area. IFR pilots should understand how the circling area is constructed. It is based on arcs centred on the threshold of all useable runways. The radius of the arcs depends on the performance category of the aircraft. Straight lines then connect each arc.

Pilots should be aware of the maximum speed for circling for their aircraft category, and any circling restrictions at their destination aerodrome. Restrictions are shown by a shaded diagram on the approach plate that details the specific area in which circling is not permitted. The diagram below shows that no circling is permitted to the south of Woodbourne aerodrome.



Circling restrictions at Woodbourne aerodrome.

> Always stay within the circling area.

While circling during the day, you can descend below Minimum Descent Altitude (MDA) only if continuous visual reference with the runway has been established and can be maintained, and the aircraft is in a position from which a descent to a landing on the intended runway can be made using normal manoeuvres and descent rates to the touchdown zone. The aircraft must be within the circling area, and the visibility must be equal to or greater than that prescribed for the instrument approach procedure. At night, the pilot must be able to maintain continuous sight of the approach lighting or aerodrome lighting. Familiarize yourself with the lighting facilities (and any special requirements) at each aerodrome. At Rotorua, for example, it is a requirement to use the circling guidance lights when circling for Runway 36 at night.

Descend below MDA only when you have intercepted an extended 3 degree profile. At night, however, it is not advisable to descend below MDA until established on finals – unless circling guidance lights are available. This is the safest way to ensure obstacle clearance and combat the dangers of the 'black hole effect'. A lack of visual reference at night means you will often have no visual way of judging how high you are, or how fast you are going, other than by reference to the runway lights.

If at any time during a circling manoeuvre an identifiable part of the aerodrome is not distinctly visible (except when obscured by the normal manoeuvring of the aircraft), while at or above Minimum Descent Altitude (MDA) the published missed approach must be executed. At some aerodromes, however, it is not possible to carry out the published missed approach when you are below MDA – due to local terrain considerations.

PANS-OPS (ICAO Document 8168 – Procedures for Air Navigation Services – Aircraft Operations) states that because circling manoeuvres can be carried out in more than one direction, different actions will be required to establish an aircraft on the prescribed missed approach depending on its position at the time visual reference is lost. To transition from the visual circling manoeuvre to the missed approach, a climbing turn should be made within the circling area, towards the landing runway, to return to MDA. Once above MDA, the published missed approach should be executed.

Planning

Managing the risk begins with careful pre-flight planning. Look at the forecast for your destination. If the runway in use will require circling, then work out a mental circling plan.

Take into consideration the alignment of the instrument approach and the runway, the terrain surrounding the aerodrome and any areas where circling is not permitted, the weather around the aerodrome, the side of the aircraft you will be flying from, and the placement of windsocks on the aerodrome. Think about some possible flight paths that will enable you to manoeuvre the aircraft for a landing while keeping the runway in sight throughout. Also think about how you would execute a missed approach when below MDA if, for example, the runway lights went out at night.

Take Palmerston North for example. In strong wind conditions, aircraft on the VOR/DME 25 approach will encounter severe turbulence, downdraughts, and lee waves. The wind over the ranges to the east of the aerodrome is often two to three times stronger than Palmerston North aerodrome's surface wind. For this reason, it is preferable to fly the VOR/DME 07 approach and circle for Runway 25.

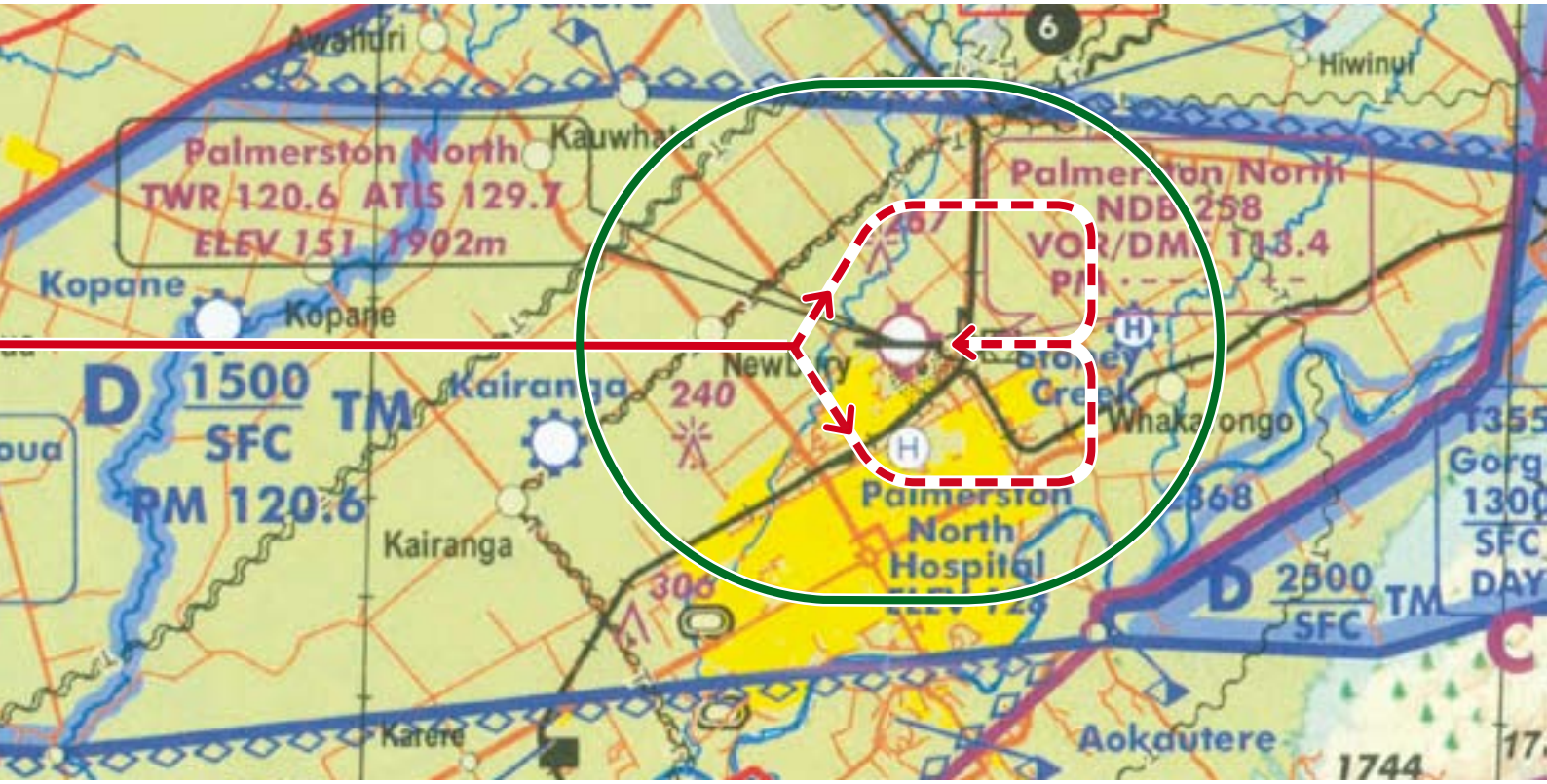
Aircraft Category	*V_{at} (Knots)	Max Speed for Circling (Knots)	Circling Area Radius (NM)	Min Obstacle Clearance (ft agl)
A	<91	100	1.68	295
B	91–120	135	2.66	295
C	121–140	180	4.20	394
D	141–165	205	5.28	394

* V_{at} based on 1.3 times V_s in the landing configuration at MAUW.

Runway 25 has a right hand circuit. A right hand circling approach at night is challenging because it is hard to see the runway lights when flying from the left seat, and a marked black hole effect is experienced when circling to the north of the aerodrome. The tower may, however, clear you for a left hand circling approach at night or when the ceiling is less than 2000 feet during the day. So it would pay to make a mental circling plan for both options.

Look at the approach plate for the figure in brackets next to the MDA, this is the height above aerodrome elevation. Use this to work out when in your circling manoeuvre you will need to descend below MDA. The Category A circling MDA for the Palmerston North VOR/DME 07 is 479 feet above aerodrome elevation, so you would not need to descend below MDA until well established on finals. For Category B aircraft it is 639 feet, which would see you maintaining MDA until the turn from base to finals. Be aware that in most cases, circling at MDA will mean you are much lower than a normal visual circuit flown at 1000 feet agl. Also think about how you will configure the aircraft while circling – when will you put the gear down and require flap?

Before flight, refresh the maximum circling speed for your aircraft category and study on a chart the size and shape of the circling area you have available. If the visibility is bad, plan to keep your circling manoeuvre tight, if the visibility is good, however, you can give yourself more space to avoid the need for turns with a steep angle of bank.



Circling options for Runway 25 at Palmerston North. The green line shows the boundary of the Category B circling area.

The VOR/DME RWY 06 approach at Woodbourne conflicts with arrival and departure procedures at Nelson. ATC prefer aircraft to fly the VOR/DME RWY 24 approach, circling for 06.

In Flight

Refresh your mental circling plan and include it when you brief the approach. If your destination aerodrome is uncontrolled, keep traffic on the local frequency advised of your position and intentions.

While flying the approach, cross check that the wind you are experiencing is what you have planned for. Fly a normal stabilised approach, but be aware that you may have a very high ground speed due to a tail wind, so things will happen quickly. Carefully monitor your rate of descent and speed control, and listen out for traffic in the circuit. Build a mental picture of where this is.

On reaching the missed approach point (MAP) a quick transition is required from instrument flight, with your head inside, to a strictly visual circling manoeuvre. If you achieve visual reference before the MAP, and you are inside the circling area, you can give yourself more time and space for the circling manoeuvre by starting it early, rather than waiting until the MAP then breaking off.

Here is a useful technique that Category A, B and C aircraft may wish to use at aerodromes with no circling guidance lights or gates. It will keep you well within the circling area, and tight enough to ensure you maintain visual reference to the runway.

Once visual, set your CDI to the runway heading, then (using the heading bug) turn the aircraft 45 degrees away from the runway and adjust your heading for wind. Fly in this direction for 20 seconds, then turn downwind and fly parallel to the runway. Abeam the threshold, continue flying in this direction for 15 seconds if at 500 feet amsl, or 20 seconds if at 1000 feet amsl. If you have a strong tail wind on this leg then you may wish to reduce these times. Now turn on to base using 25-30 degrees angle of bank. Keep your visual scan outside the aircraft throughout the circling manoeuvre to ensure you remain clear of cloud, traffic, and terrain. When mid base, judge whether the turn to final needs to be early, standard, or late.

Descend below MDA only when you have intercepted a 3 degree profile. If you use DME to work this out, make sure you take into account the location of the DME on the aerodrome.

You must be prepared to carry out a missed approach if an identifiable part of the aerodrome is not distinctly visible at any time while circling, if the workload becomes unmanageable, or you simply feel uncomfortable with the approach. Climb towards the landing runway to return to MDA. Once above MDA, the published missed approach should be executed. ■

Managing the risk begins with careful pre-flight planning.

Use of **Safety Information**

The CAA will soon publish its policy on how safety information is collected and used.

In part, the policy will clarify when information collected for safety purposes may be used in prosecutions.

Director of Civil Aviation, Steve Douglas, says this is a concern for many in the aviation community.

"Industry members are concerned that the CAA is using safety information, particularly from accident investigations, in prosecutions. The concern is that this will translate into aviation participants not reporting accidents and incidents when they are required to do so.

"When and how safety information can be used is a complex issue because no two situations are alike. It is not possible to list every situation in which safety information may be used to inform a prosecution. In each situation a judgement must be made.

"The policy on the Collection and Use of Safety Information will detail the principles that the CAA must consider when making these judgements," Mr Douglas said.

Before the CAA initiates a prosecution, following an investigation, two key factors are considered. The evidence must show there is a charge to be answered; and taking the prosecution must be in the public interest.

New Zealand law, including the Civil Aviation Act, does not provide protection from prosecution to anyone disclosing information to the CAA voluntarily, or as required by the Act and Rules. However, due to the nature of much of the information that is disclosed, the CAA is required to exercise judgement about what use it can make of the information. Guidance about when information provided to the CAA under an obligation in Part 12, could be used for the purpose of a prosecution investigation, or for prosecution action, is provided in Civil Aviation Rule 12.63 *Non-prosecution.*

"Safety information submitted by a person under Part 12 *Accidents, Incidents, and Statistics* must not be used for prosecution action unless the information reveals an act or omission that caused unnecessary danger to any other person or property. That is the same threshold that has always applied," Mr Douglas said.

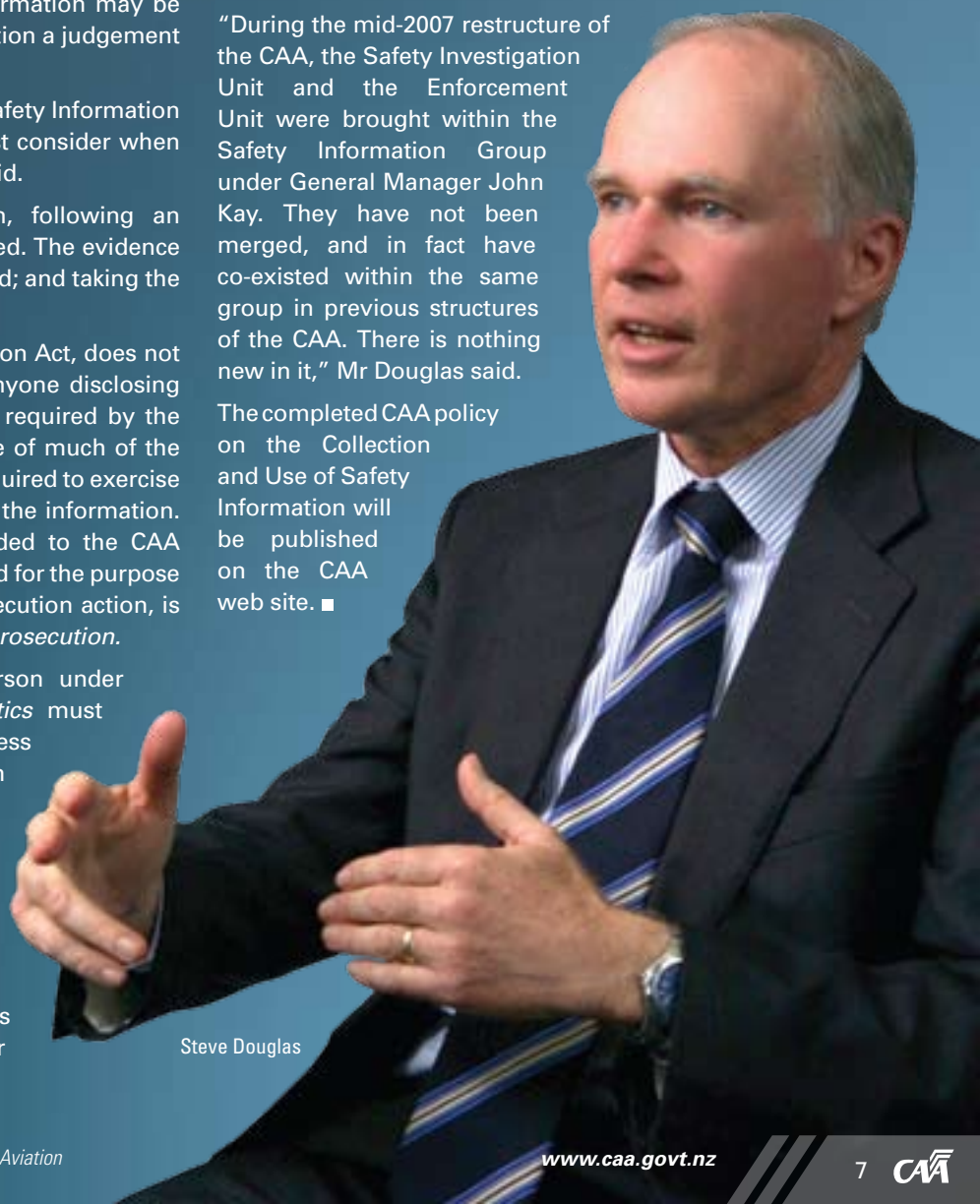
The policy did not signal an increased focus on prosecutions.

"The number of prosecutions the CAA has taken has remained constant at about 25 per year for the past ten years. The CAA primarily investigates accidents and incidents for the broader purpose of identifying safety issues and taking regulatory action in the interests of safety, as well as holding aviation participants to account for their safety responsibilities. What I have signalled is an increased focus on investigating incidents more than accidents, because investigating these precursors to accidents will yield the greatest return in safety benefit to the civil aviation system," Mr Douglas said.

Further confusion had arisen about the relocation last year of the CAA's Safety Investigation and Enforcement units within the same operational group.

"During the mid-2007 restructure of the CAA, the Safety Investigation Unit and the Enforcement Unit were brought within the Safety Information Group under General Manager John Kay. They have not been merged, and in fact have co-existed within the same group in previous structures of the CAA. There is nothing new in it," Mr Douglas said.

The completed CAA policy on the Collection and Use of Safety Information will be published on the CAA web site. ■



Steve Douglas

Helicopters **Fight Frost**

Often on windless nights, when the temperature drops below 5 degrees centigrade, a frost will form.

Frost damages the small fruit buds on plants.

Helicopters fight frost by dragging warm air down from inversion layers above cooler air. They also prevent cold air from ponding, by keeping the air circulating.

One issue that arises with so many aircraft involved, is congestion at the fuel supply. Manager Rotary Wing and Agricultural Operations, John Fogden, says that this needs to be managed.

"On one evening in Omaka last year, about a dozen helicopters were waiting for fuel. With so many helicopters operating in the area it was inevitable that congestion occurred around refuelling sites.

"Operators can mitigate this risk by having fuel on site – a mini tanker or jerrycans are ideal."

Urgent call-outs are also a risk to safety, according to John. An operator may receive an urgent call-out when frost is not forecast. The operator should have a written procedure for handling this situation.

"Do not compromise personal or company minimums to make it to what someone else considers to be an 'emergency'," says John.

With the imminent start of the frost protection season, pilots should start planning for frost protection work now. The risks associated with frost protection work can be reduced by careful consideration and planning.

Considerations

- Meet the grower before the season starts to identify potential hazards and formulate a hazard plan. During this meeting also gather information about any 'sensitive areas' to avoid flying over. An example of this would be areas containing stock.
- Confirm that the grower has informed their neighbours of imminent helicopter operations.
- The landing and refuelling area

Approximately 130 helicopters descended on the Marlborough wine-growing region on one night last year to conduct frost protection. The frost protection season generally starts in October and runs to the end of November, and typically affects vineyards and orchards between Queenstown and Auckland.

should be on-site, clear of obstacles, and well lit.

- The pilots should have at least six hours of rest prior to commencing frost operations. Accommodation for rest should be provided on-site.
- Time should be spent familiarising yourself with the relevant charts or aerodrome plates before the flight is conducted.
- Position the helicopter before Evening Civil Twilight, not at night.
- Allow 15 minutes for your eyes to adapt to the dark before night flying. For more information on night VFR see the July/August 2008 issue of *Vector*.
- Remember that judgement of distance is more difficult at night than during the day.
- Make sure that you can communicate with other helicopters in the vicinity and with the grower.
- Have a written emergency callout procedure.

Night flying needs to be treated with the utmost care and respect. The risks involved in frost protection operations can be reduced by positioning the helicopter during daylight hours, receiving a thorough briefing from the grower, and ensuring that the pilot and the helicopter are suitably qualified and equipped for night flying. ■

Who Can Provide Frost Protection?

Only pilots who hold a current commercial helicopter pilot licence (this includes having a current medical certificate) with valid night privileges are able to carry out frost protection work.

Provided that no passengers are carried, the flight is considered a non-certificated hire or reward operation. If a passenger (grower included) is carried, then the operation is considered an Air Transport Operation, and the operator is required to hold a Part 119/135 Air Operator Certificate.

Flight Training
Growing Pains

Flight Training has become a booming business in New Zealand. In the past three years, the number of students training for commercial pilot licences has increased from about 300 per year, to over 800.

CAA Manager Personnel Licensing, John McKinlay, has met with representatives of the flight training industry this year to discuss the flow-on effects of the dramatic growth.

"There is no collective organisation controlling flight training in New Zealand. It is an industry made up of individual training schools and clubs, the Airways Corporation, the CAA, ASL, airports, and aviation bodies, such as the Flight Training Division of the Aviation Industry Association. The system works well, but the sudden growth in recent years has shown up some cracks. It's the right time to put our heads together and plan for some future-proofing," John says.

The CAA has this year held three open-invitation discussions on the subject with flight training representatives in Tauranga, Palmerston North, and Dunedin, as well as the flight training division of the Aviation Industry Association.

Between 30 and 50 people attended each of the CAA-run sessions.

"Anecdotal reports from controllers, and comments from other airfield users, show that flight training is an aviation activity with an increasing profile.

"The majority of the increase has come from overseas students. More foreign student pilots has meant more communication problems, especially where English is not their first language, but that is just one issue that is easy to identify, and we have to be careful not to over dramatise it. This year, about half of our overseas students are from Britain," John says.

"This is not just a CAA issue, and it's not particular to certain areas or certain training organisations. This is a national issue that affects everyone in flight training. We wanted to know what the issues are, what the solutions might be, who should be doing the work, and when.

"Overall, the attendees reported that they were seeing an increase in problems with language, navigation, radio skills, and airmanship."

"We noted the issues and the solutions suggested by the attendees, and have summarised and reproduced these here. Some ideas would be viable immediately, and could be actioned by flight training organisations. Others would require legislative changes," John says.

Among the changes suggested are limiting course sizes, increasing the instructor to student ratio, providing mentoring for instructors, integrating theoretical and practical lessons, benchmarking English language skills at the start of training, simplifying airspace and clearance procedures, improving the flow of incident statistics from the CAA to flight training organisations, improving aerodrome ground movement systems, and supporting local user groups and safety committees.

"Some of these ideas reflect the proposals outlined in the draft Notice of Proposed Rule Making to Part 141 *Training Organisations – Certification*. The CAA last month held 12 presentations nationwide on these proposals. We are also recruiting two staff whose focus will be flight training. We have begun discussions around what standard of English should be required pre-first solo, and it has yet to be seen what effect the current English language proficiency exam will have."

"Commercial factors are influential to this issue. What I want to see now is the industry taking control of the issue, setting up regular meetings, and starting to work through the options. It's going to mean evaluating whether the industry is under-pricing internationally, and improving communication and cooperation between business competitors.

"The CAA continues to offer its support and participation throughout this process," John says. ■

Possible Responses to the Recent Growth in Flight Training

A list of issues and solutions suggested by the aviation community at meetings coordinated this year by the CAA.

Consider	Viable?	By Who	How	When
Manage growth	Yes	All training organisations		Progressing
- Limit course size	Yes	All training organisations		
- Instructor/student ratio	Yes	All training organisations		
- Allow time for consolidation	Doubtful	All training organisations		Now or next course
- Instructor supervision/mentoring	Yes	All training organisations	Detailed by 141 organisation	Now
- Integrate theory with practical	Yes	All training organisations		Next course
- Length of training courses	Maybe	All training organisations	Detailed by 141 organisation	
- An appropriate management system	Yes	All training organisations		
- Benchmark English language at start of training	Yes	All training organisations	IELTS level 5.5	Next course?
Airline opportunities are a disincentive to be instructor	Maybe	All training organisations	Provide incentives – other than pay?	
Incidents related to hours, not necessarily proportional	Yes	All training organisations	Incident reporting and feedback	Monthly? 6 Monthly
Student selection	Doubtful	All training organisations	Interview/objective assessment	
Parenting - lack of clear guidelines	Yes	All training organisations	See "Discipline"	
Improve FRTO training	Yes	All training organisations	Require radio exam before first solo?	Now
Remove student loan cap	Maybe	AIA/Training organisations	Appropriate lobbying?	Ongoing
Cultural differences across nationalities	Yes	AIA	Education	
Enforce AIA code of practice	Yes	AIA		Now
Simplify the airspace	Maybe	Airways		
Simplify clearances	Yes	Airways	Slow down/timing of delivery	
Adequately resource towers	Yes	Airways		Ongoing
Part 141	Yes	CAA		
Increase instructor experience requirements	Maybe	CAA	Part 61	Ongoing
Benchmark English language prior to first solo	Yes	CAA	IELTS 5.5; Radio exam before solo?	
Feedback incident statistics to organisations	Yes	CAA	Safety analysis	
Increase flight training surveillance	Yes	CAA	Increase resource	
Instructors responsible for English language	Maybe	Instructors	Talking too fast/slow down	Current Rule requirement
Discipline/Attitude	Yes	Instructors	Attitude adjustment!	
Confront inappropriate behaviour	Maybe	Instructors	Define and require improved discipline/respect	Requires education
X/C Flight authorisation standards	Yes	Instructors	Demand higher knowledge level	Now
Aerodrome infrastructure	Yes	Airport management	Sufficient taxiways/parking	Ongoing
Traffic management	Yes	Airport management	Review movements	Ongoing
Grass closures	Yes	Airport management	Consider for taxi if closed to T/O	Now
Communication	Yes	All	Regular meetings	Ongoing
Pricing to reflect quality	Yes	All	Realistic market appraisal	Ongoing
User group activity and local safety committees	Yes	All	Increase	Ongoing

New ATC Technologies

A new system being installed in Queenstown will improve coverage for the observation of aircraft in mountainous areas. In the future it is likely to be the most common form of air traffic surveillance in New Zealand.

There are two types of new ATC surveillance technology being introduced: Multilateration (MLAT), and Automatic Dependent Surveillance–Broadcast (ADS–B).

The basis of MLAT in its simplest form is triangulation by measurement of the time a transponder signal takes to reach the various receivers. These times are gathered at one central processing unit and the position of the aircraft is obtained by triangulation (see photo). MLAT and ADS-B are generally more accurate than conventional radar.

MLAT can also be applied to aircraft and vehicles on the ground, fitted with transponders, to assist Aerodrome Controllers with the position and movement of traffic. This is useful during low visibility operational periods, such as during Cat III ILS operations at Auckland aerodrome.

MLAT is being installed at Auckland aerodrome in November 2008, with the objective of providing enhanced surface movement surveillance of aircraft and vehicles at all times. A supplement will be issued outlining the essential changes to transponder procedures.

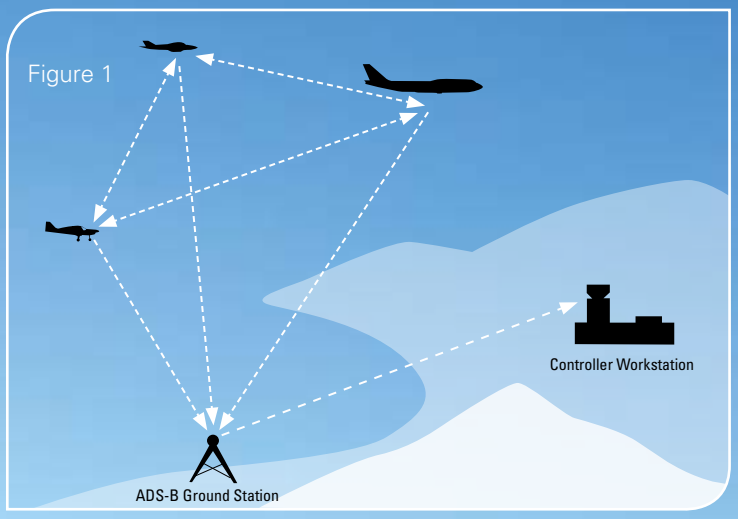
ADS-B technology requires an aircraft to be fitted with a mode 'S' transponder and a linked Global Navigation Satellite System (GNSS) receiver. During interrogation of the aircraft transponder, the identity, GNSS position and altitude, current track, ground speed, and system integrity, are relayed to ATC via a ground station. Aircraft fitted with a 'Cockpit Display of Traffic Information' can also receive this information directly from other ADS-B equipped aircraft in the vicinity (see Figure 1).

Aircraft that do not have this technology may be upgraded, however many new production aircraft have it as a standard feature.

Operationally, the main difference between MLAT and ADS-B is that MLAT is limited in range and will generally be used within a control zone or terminal airspace. Coverage for ADS-B, on the other hand, can range up to 250 NM and only one ground station is required because the aircraft position is derived from the aircraft's GNSS data. In essence, the two technologies complement each other.

There is no intention to amend controlled airspace to require the carriage of ADS-B capable systems at this time, however it is something that is worth considering if a new aircraft is being imported.

MLAT and ADS-B work in mountainous areas because of the multiple ground stations that the aircraft data can



ADS-B data Broadcast at 0.5 second intervals.
Sends: Position, Altitude, Identity, Velocity Vector, and Integrity Data.

be sent to. The ground stations are positioned to minimise any shielding by mountain peaks. The new installations can be deployed with minimal environmental impact, solar-powered if necessary, and are capable of withstanding extreme environmental conditions.

Airways New Zealand Air Navigation Services Specialist, Wayne Blythe, believes the new surveillance technology will be a great improvement, as ATC will extend the surveillance service to a larger area and receive more accurate tracking information from aircraft.

"Controllers will be able to provide pilots with more accurate and timely traffic information. They will also be able to confirm that pilots are where they say they are," says Wayne.

"The system can also be used to help pilots if they are uncertain of their position or are lost. This is a service that we haven't been able to provide in the past in locations such as Queenstown."

It is envisaged that, in the future, separation based on MLAT will be applied to aircraft. This will amount to a reduction in separation from the current separation requirements in Queenstown, and should help improve the safety and efficiency of aircraft operations in controlled airspace.

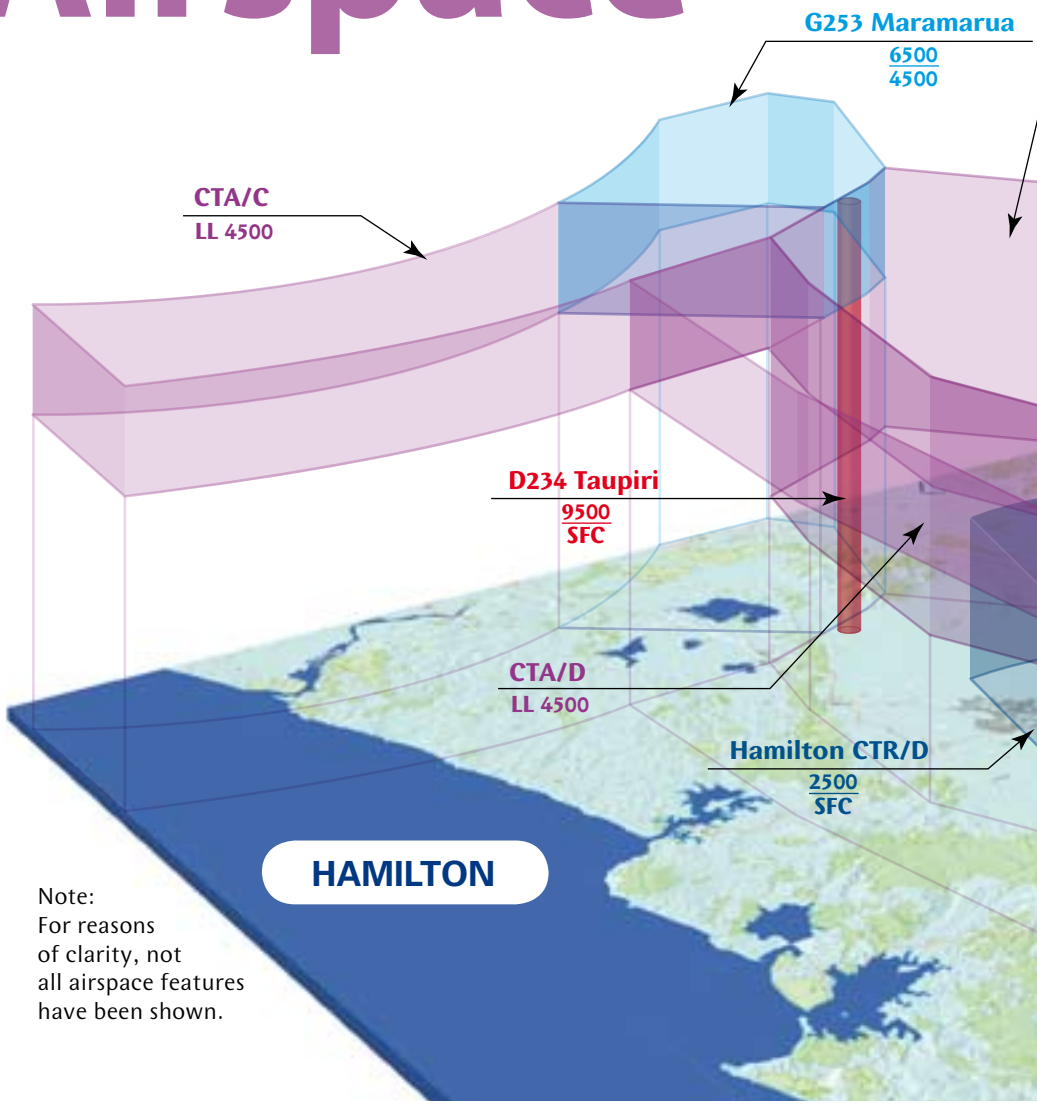
Airways will be installing MLAT in Queenstown in June 2009, following which there will be an extensive test period before the system can be fully launched.

Advantages for the pilot are greater ATC efficiency, and aircraft position confirmation. ■

Surveillance is a word you may associate with being audited, or undergoing spot checks by the regulator. Some adjustment in perception may be required as this word is becoming commonplace when talking about airspace and Air Traffic Control. It is being used to describe the surveillance carried out by the new technologies that directly assist the pilot, rather than just inform the Air Traffic Controller. This shift in emphasis (from traditional radar systems) began with transponders, or Secondary Surveillance Radar (SSR). Collision avoidance systems are another example, as is the use of ADS-B for aircraft to be able to 'talk' to each other, exchanging position and track information.

Charting
New Airspace

New Visual Navigation Charts (VNCs) will become effective on 20 November 2008, and a number of airspace changes will come into effect at the same time. All airspace changes will be detailed in *AIP Supplement 08/11*. Here are some of the more significant changes.



Waikato and Bay of Plenty

Control Areas (CTAs) surrounding both Hamilton and Rotorua will have considerable boundary and lower limit changes. In some places the lower limit has been raised, and in other places lowered. For example, the upper limit of the Matamata MBZ will change from 6500 to 4500 feet to coincide with the new lower limit of the CTA above.

All General Aviation Areas (GAAs) in the Waikato region will be disestablished. In their place, three new GAAs will be created north and east of Hamilton for VFR operations, in particular gliding, hang gliding, and paragliding. They are, NZG253 Maramarua, NZG254 Matamata, and NZG458 Karapiro.

Hastings

A Common Frequency Zone will be introduced surrounding Hastings Aerodrome, using 125.8 MHz.

Manawatu

The eastern portion of the Palmerston North Control Zone (CTR), including the Gorge VFR Transit Lane, will be disestablished.

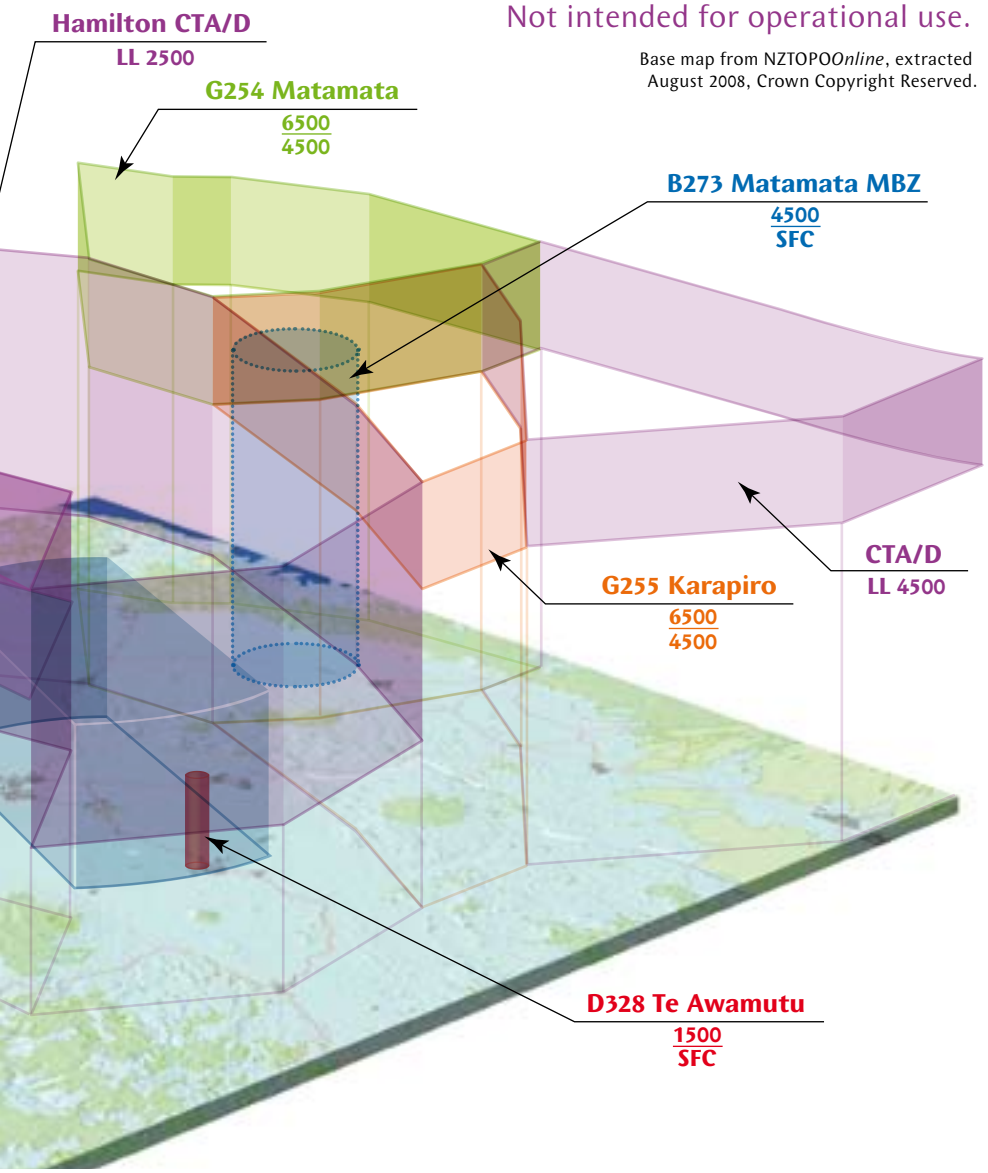
The boundaries and lower limits of the Ohakea CTAs will change in response to this, giving VFR pilots more height when flying through the Manawatu Gorge, or crossing the ranges, below controlled airspace.

The CTA to the east and south of the gorge (with a lower limit of 2500 feet) will be extended. The CTA over the gorge will have a lower limit of 1800 feet, and the CTA to the west of the ranges will have a lower limit of 1500 feet. Currently the upper limit of the Gorge VFR Transit Lane is only 1300 feet.

To the west of Pahiatua, a new and expanded Mangahao Danger Area, NZD522, will replace NZM500 and NZD521.

Taranaki

The Waitara Danger Area will be disestablished and replaced by a larger Motunui Danger Area NZD322, around the petrochemical plant.



Not intended for operational use.

Base map from NZTOPO*Online*, extracted August 2008, Crown Copyright Reserved.

The Maui MBZ will be replaced with a new Maui Common Frequency Zone (CFZ) using 133.65 MHz. This will be much larger than the current MBZ.

Canterbury

The Temuka MBZ will be disestablished and replaced with an expanded Timaru MBZ, from the surface to 4500 feet. A new Rangitata CFZ will be established, using 119.5 MHz.

A new Pukaki Danger Area, NZD926, will be established, and the boundaries of the Braemar and Tekapo Danger Areas will be changed.

Charts

Make sure you refer to the current charts whenever you fly, and always check NOTAMs and the latest *AIP Supplement* before flight.

The 1:500 000 charts are for use en route and do not depict all features. For example, they do not show Visual Reporting Points or Control Zone Sectors. The 1:250 000 charts show considerably more cultural detail and full aeronautical detail. They are designed for local operations around aerodromes. ■

Timaru MBZ and Rangitata CFZ

Hastings CFZ

Manawatu Gorge

Maui CFZ

Pukaki Danger Area

Spring **is Sprung**

"Spring is sprung, the grass is riz;
I wonder where them birdies is." Anon

It's that time of year again, when you drag yourself and your aircraft out of the hangar, dust it off, and launch into the summer season of flying.

Nests

Springtime is nesting time, and birds will build their nests wherever they take their fancy. Engine bays or tail cones seem to be favoured locations – and it's not only birds, keep an eye out for rodent nests too.

Give your aircraft cavities a thorough check. It may be worthwhile taking cowlings off to have a closer look. Engine bungs may not be enough to stop nesting birds on a mission – there are plenty of ways a bird can get into an engine bay – and there may only be a few strands of grass as clues.

This is also the ideal time to wash off any corrosive bird poo.

Thermal Runaway

Thermal runaway is a problem particular to nickel-cadmium (Ni-Cad) batteries, especially during a long start or when the battery hasn't been used for a while. During the start, a large drain on the battery occurs and the battery gets warm. Once the engine is started and the generator is recharging the battery, a high current is put back into the battery. Normally, the current reduces as the charge is built up, but where there is a temperature imbalance between cells, the current will continue to increase. The increase in current leads to an increase in temperature which leads to a further increase in current, and so on. This is thermal runaway and can lead to the battery exploding.

To avoid this situation, get your Ni-Cad battery serviced regularly and do not try and jump-start your aircraft if you have a flat battery – the generator will charge the battery too rapidly.

If you do get thermal runaway – which you will be able to identify by a very high battery temperature reading – land as soon as possible and leave the battery well alone. It will be some time before it is safe to handle.

Aircraft Currency

A thorough pre-flight is a must. Take the opportunity, while looking for bird's nests, to refamiliarise yourself with the features of your aircraft.

Carry out a thorough check of your maintenance books and tech log. Make sure there is a current Annual Review of Airworthiness, and any other ADs or maintenance requirements have been met.

Check to make sure your emergency equipment is serviceable and within date.

Do a full engine run before you takeoff, making sure all indications are normal and the engine is performing as it should.

Now is the perfect time to fill in your aircraft operations statistics forms (CAA 605a or 605b). If you haven't done any flying and you don't file a statistical return, the CAA does not assume that no flying was done, but assumes you did an average amount of flying. This skews the statistics the CAA produces, essentially leading to an over-reporting of the hours flown in New Zealand. Please remember to fill in your statistical returns, even if you haven't done any flying.

Pilot Currency

Is your medical current? You may need to allow some extra time to complete items such as blood tests or hearing tests.

Is your BFR current? This can also take a few days to complete, as you need to complete all elements of the BFR – including items such as crosswind landings. Get one of our new reminder bookmarks that slot into your logbook, to help you keep track of your currency (see New Products, page 25).

Even if you don't need to do a BFR, it may be worth doing a check ride with an instructor, or taking a safety pilot.

Are you current on type? Take all opportunities to do some armchair flying. Run through the emergency procedures, and those skills you haven't used for a while. Revisit the location of all the controls with your eyes closed. You can even do this in the aircraft while it's in the hangar.

On 20 of November 2008 new charts will be effective, and available from the Aeronautical Information Management unit – aim@airways.co.nz or telephone 0800 500 045 – from the end of October. Make sure your charts are up to date.

Weather

Spring means the arrival of better weather (relative to winter anyway), longer days, and the spring equinox. November is one of the windiest times of the year, so be aware of your limits, plus those of the aircraft.

With spring comes the change to daylight time, and this makes the calculation from local time to UTC and back, that little bit more complex. It also makes working the weather reports back into local time a little harder – be vigilant with your calculations.

Carburettor Ice

In general, carburettor ice should be expected when the outside air temperature is between –10°C and +30°C with high humidity and visible moisture is present. However, it is most likely between +10°C and +15° with a relative humidity above 40%.

Spring sees an increase in relative humidity, so be even more vigilant for carburettor icing.

Grass Runways

Speaking of carburettors, with the availability of grass runways in the summer, there is an increase in the amount of grass seed found in carburettors. Generally this is due to the carb heat being ON while on the ground. Be extra vigilant when operating from grass runways – a seed in the wrong place could ruin your whole day.

Just because grass runways become available, doesn't mean they are in perfect condition. They may still be soggy, and wet grass can seriously degrade your braking performance.

One more timely reminder about grass runways. Make sure that if you are going to use them, that you identify the runway properly. There have been too many incidents of people landing between the grass runway and the sealed runway, because they did not carefully identify which bit of the grass area they were supposed to land on. Brief yourself carefully from the *AIP New Zealand, Vol 4* and look out for the marker boards. ■

Met Report Changes

From 5 November 2008 the TAFs, METARs, and SPECIs for Auckland, Wellington and Christchurch will change to align with the international ICAO format. From this time on, only 24-hour TAFs will be issued every 6 hours at these aerodromes, with amendments as required.

At all other aerodromes, the TAF, METAR, and SPECI will continue to be issued in the current format. In a year's time, however, there will be a review to look at extending the ICAO format to more New Zealand aerodromes.

There are four elements that will change in the Auckland, Wellington, and Christchurch reports; the reporting of cloud, the introduction of two new codes (9999 and CAVOK), and the inclusion of the day in the forecast times.

Cloud

Cloud will only be included in the report when it is of operational significance. It will only be reported when the base is either below 5000 feet, or below the highest minimum sector altitude, whichever is greater.

All the Nines (9999)

A visibility of 10 km or more will be indicated by the use of 9999.

CAVOK

The term CAVOK ('cav oh kay', cloud and visibility OK) will be used when the following occur **simultaneously**:

- visibility is 10 km or more;
- there is no cloud of operational significance;
- there is no weather of significance to aviation (eg, precipitation, fog, mist, thunderstorms, etc).

Time Format

In the new TAF format only, the validity times will include the date as well as the time. For example a TAF that is valid from the first of the month at 0600 until the second of the month at 0600 will now use the code, 0106/0206. This code will also be used for times shown within the TAF.

Examples

METAR NZCH 010600Z 04016KT **CAVOK** 17/12 Q1021

TAF NZWN 010450Z **0106/0206** 34010KT **9999** FEW025 TEMPO **0113/0116** BKN012

SPECI NZAA 010000Z 03022G34KT 010V080 2000 R05/1300D –DZRA FEW003 BKN006 22/21 Q0997 RERA WS RWY05

AvKiwi 2009

Next year's AvKiwi Safety Seminars will be on weather. This will be a good opportunity to come along and brush up your knowledge as well as catch up with some of the recent changes. ■

Director Presents **2008 Awards**

The CAA has presented its 2008 Flight Instructor Award to Paul Kearney, an A-Category flight instructor from Massey University School of Aviation. The Director's Award for an organisation was presented to Real Journeys' Part 145 maintenance organisation.

The CAA Flight Instructor Award is presented annually to recognise and raise awareness of the important role flight instruction plays in aviation safety. The Director's Awards are presented to the individual, and organisation, in which a safety ethos is apparent.

Presenting the awards at the Aviation Industry Association awards dinner in July, Director of Civil Aviation, Steve Douglas, said the awards recognise and reward individuals and organisations that encourage others to adopt a similar safety culture and philosophy.

"They recognise that safety is everyone's concern, and that aviation can be safe only when individuals and organisations accept their safety responsibilities," Mr Douglas said.

Paul Kearney is an A-Category flight instructor, a GA Flight Examiner, and the QA Manager at Massey University School of Aviation.

Paul has had a passion for safety ever since he attended a CAA Aviation Safety Coordinator Course and loves passing on his knowledge. He believes that instilling safety into pilots at an early stage in their flight training is key.

"Right from day one we indoctrinate our students into our safety culture. We encourage our students to report safety concerns, as we believe that others can learn from them."

Real Journeys' Chief Executive Officer, Dave Hawkey, received the Director's Award on behalf of their Part 145 maintenance organisation.

The company has nine full-time and two part-time engineering staff. The average length of service is more than 25 years, with the maintenance controller having been there over 40 years.

Paul Kearney received the Flight Instructor Award.

Dave Hawkey received the Director's Award on behalf of Real Journeys' Part 145 maintenance organisation.

In presenting the organisation award, Mr Douglas said the company's level of experience, attention to detail, skill, and high quality workmanship had been maintained and enhanced over many years.

Dave Hawkey says the company focuses on preventative maintenance, "... and on ensuring our staff have all the resources they require to do their job properly. The pride the team have in what they do has a direct effect on safety."■

Meet your **Aviation Safety**

You will know them as Field Safety Advisers, but they are now called Aviation Safety Advisers (ASAs).

CAA General Manager General Aviation, John Lanham, says the change of title has a two-fold benefit.

"It better reflects their purpose and the nature of their activities, and it means that non-aviation people can better understand their role.

"As an added bonus it also aligned them with the Australian Aviation Safety Advisers, who also changed their titles recently," John says.

ASAs provide broad safety advice to industry, on industry turf. They are not auditors, nor inspectors, nor approvers, nor enforcers. They act as facilitators and educators with industry, providing advice on industry activities and CAA initiatives.

The ASAs are regionally based and operate mainly within their own 'patches' throughout New Zealand, within which they develop contacts with aviation operators and participants. They provide a CAA perspective at industry user-group meetings, give broad advice on the meaning of the Civil Aviation Rules, and refer industry views and problems to the appropriate CAA technical staff and management. They are also involved in CAA safety courses and seminars.

You can rely on advice from your ASA as being the up-to-date CAA view, and they are there to assist everyone, including individual pilots and aircraft engineers. Anyone who has any question about being part of New Zealand's aviation system can ask their ASA. The ASAs carry reference copies of CAA publications, and can provide discussion documents, posters and products as well as access to the CAA web site.

Don Waters

Don's first training flight was on 24 November 1968 in a Piper Cherokee at Ashburton aerodrome. He then switched to flying helicopters in 1974 and got his first flying job two years later in the central North Island.

For 18 years Don operated as a one-pilot operation, spraying and flight training in Hamilton. He is a helicopter flight instructor, Category B, D and E, holds a Flight Examiner Rating, and has over 8000 hours in helicopters, and 163 in fixed wing aircraft.

In 2002 Don sold his business and the helicopter, surrendered his operating certificates and became the CAA's Northern ASA.

Don's patch covers the top half of the North Island.

Contact

North Island, north of a line, and including, New Plymouth-Taupo-East Cape
Tel: 0–7–376 9342
Fax: 0–7–376 9350
Mobile: 027–485 2096
Email: watersd@caa.govt.nz

Ross St George

Ross began flying with the Air Training Corp, but in the late 1960s a flying career with the air force was out of the question if you wore glasses, so instead he went to university and completed a doctorate in psychology.

His teaching and research career included developing aviation human factors courses, crew safety training programmes in the UK, and advice to Air New Zealand on the introduction of a flight-and-duty time fatigue management scheme for extended range operations. Ross has also completed the Cranfield Air Accident Investigation course.

Ross has logged over 1100 hours on a variety of general aviation aircraft, but his favourite would have to be the Piper Cherokee he part-owns, and which over the years has received a lot of 'TLC' and refurbishment.

Ross covers the lower half of the North Island.

Contact

North Island, south of a line
New Plymouth–Taupo–East Cape
Tel: 0–6–353 7443 Fax: 0–6–353 3374
Mobile: 027–485 2097
Email: stgeorger@caa.govt.nz

Advisers

Murray Fowler

Before Murray joined the CAA as a Field Safety Adviser in 1995, his roles at the Canterbury Aero Club included Chief Flight Instructor, Chief Pilot, Operations Manager and Maintenance Controller. His flying career started with a first lesson in 1980.

Murray holds an A-Category instructor rating, has in excess of 5500 hours – instructing and flying air transport operations – and is still involved in general aviation as a flight examiner, as well as a part-time instructor in the Piper Cub.

Murray's wealth of experience, in instructing and running a successful flight training organisation, has been instrumental when providing advice to industry and the CAA.

Murray covers the whole of the South Island.

Contact
South Island
Tel: 0–3–349 8687
Fax: 0–3–349 5851
Mobile: 027–485 2098
Email: fowlerm@caa.govt.nz

John Keyzer (Maintenance)

John is one of our two maintenance specialist ASAs and he covers the whole of the North Island. He is a Licensed Aircraft Maintenance Engineer with over 31 years experience.

John started as an apprentice with Pacific Aerospace Corporation in 1977. Since then, his career has seen him maintaining helicopters around the world – in Australia it was Jetrangers, and in Taiwan it was BK117s.

John is the former Chief Engineer of both Wing and Rotor Aviation, and Eurocopter, in Auckland.

His experience as a chief engineer, and senior person in an organisation, is well utilised by industry and the CAA.

Part of John's role in the CAA sees him, along with Bob Jelley, presenting the CAA's very successful Maintenance Controller courses.

Contact
Maintenance, North Island
Tel: 0–9–267 8063
Fax: 0–9–267 8063
Mobile: 027–213 0507
Email: keyzerj@caa.govt.nz

Bob Jelley (Maintenance)

Bob started his engineering apprenticeship with the Southlands District Aero Club in 1967. Bob stayed working in the lower South Island, eventually holding the post of Chief Engineer for Dalhoff and King Aviation (which eventually became Flightline Aviation) for 15 years.

In 1995 he moved to Christchurch where he worked for Ansett – which became Qantas NZ. Just before Qantas NZ failed, he noticed an advert in the local paper looking for an FSA. Bob has been with the CAA since 2001 as our South Island maintenance specialist.

Bob has over 2300 hours in a variety of fixed wing types (including a multi-engine rating) and helicopters. Bob is also the proud builder of an RV7 that took 2 years and 2 weeks for him to build. His only problem now is getting enough time between the weather and work to fly it.

Contact
Maintenance, South Island
Tel: 0–3–322 6388
Fax: 0–3–322 6379
Mobile: 027–285 2022
Email: jelleyb@caa.govt.nz

How **Automatic Weather Stations** Work

Automatic METARs (known as METAR AUTO) are produced by Automatic Weather Stations (AWS). They use laser ceilometers to detect cloud layers, and sensors to determine visibility and present weather – replacing the traditional human observer.

MetService is in the process of introducing a new generation of AWS to its network. Automatic METARs are currently produced at Kerikeri, Whangarei, Tauranga, Rotorua, Gisborne, Napier, Paraparaumu, Woodbourne, Nelson, Hokitika, and Invercargill. They will be introduced at New Plymouth, Taupo, and Pukaki on 1 December 2008. Another 15 will be added to the network by the end of 2009.

Unlike manual observations, AWS report new data every minute of every day and automatic METARs are produced from this data every 30 minutes.

How Does it Work?

The sensors used to determine cloud layers, visibility, and present weather, are accurate and highly reliable systems that meet worldwide industry standards. They do not, however, scan the sky in the way that a human observer does.

Cloud is determined by recording laser signal echoes reflected from clouds, and sorting these into layers. The laser 'sees' the movement of cloud across the laser beam (directly above the weather station). This data is averaged over 30 minutes, with a strong bias towards data for the 10 minutes before each automatic METAR is produced, giving an accurate picture of the height and extent of each cloud layer. The advantage of ceilometer measurements is that they are taken over the aerodrome, whereas manual observations are mostly estimated from cloud on nearby hills, which may be quite different to the cloud base above the aerodrome.

When the AWS does not detect cloud "NCD" is reported, and when it does detect cloud three strokes "///" are placed at the end of each cloud layer group to show the AWS doesn't have the ability to identify TCU or CB cloud types.

The visibility sensor takes a spot measurement of the clarity of the atmosphere. It uses an infrared light transmitter and receiver to measure the amount of light scattering caused by rain, fog, dust and haze. The data collected over the previous 10 minutes is averaged to produce the visibility reported in an automatic METAR. "NDV" indicates that directional visibility variations are not reported. It cannot identify adjacent visibility reductions such as fog near the aerodrome. AWS at some locations

are capable of reporting visibility up to 60 km (Paraparaumu), while others are only designed to measure up to 50 km (Tauranga, Rotorua, and Invercargill), or 20 km (Kerikeri, Whangarei, Gisborne, Napier, Nelson, Woodbourne, and Hokitika).

The ICAO definition of visibility is, "the greatest distance at which a black object of suitable dimensions, situated near the ground, can be seen and recognized when observed against a bright background". Simply being able to see a mountain range 80 km away does not imply that the visibility is 80 km.

To calculate present weather, an algorithm is used to combine precipitation detected by the sensor, with visibility and temperature measurements. When the AWS does not detect a reportable present weather condition, two strokes "//" are inserted in the present weather field. "TS" is added to the present weather field if lightning is detected by MetService's Lightning Detection Network within 8 km of the aerodrome, and "VCTS" is added if it is detected between 8 and 16 km from the aerodrome.

Wind data comes from an anemometer usually mounted on a 10 metre mast, and QNH is measured by an electronic barometer using three independent pressure sensors.

The operation of the new AWS installations and the production of the automatic METAR meet, and in some aspects exceed, well founded internationally prescribed standards.

Examples from MetFlight-GA:

NZRO:

METAR 200100Z AUTO 22013KT 190V250 33KMNDV -SHRA OVC048/// 19/16 Q1021

NZPP:

METAR NZPP 202000Z AUTO 09005KT 60KMNDV // NCD 06/02 Q1019

The Big Picture

METARs report the actual weather at an aerodrome, they are not a forecast. What they report relates to an 8 km cylinder around an aerodrome. They are one part of the big weather picture.

METARs (whether manual or automatic) should always be read in conjunction with all available meteorological information, particularly forecasts.

Aerodrome forecasts (TAFs) are expected to become more accurate for aerodromes with AWS. TAFs also relate to an 8 km cylinder around an aerodrome. They are issued daily at 1600 UTC, between 2030 and 2200 UTC, and at 0400 UTC for aerodromes with night operations. They are amended when significant changes occur, or are forecast to occur. Before the introduction of automatic METARs, manual METARs were limited to the operational hours of ATC towers, and forecasters were often unable to check their 1600 UTC TAF against actual conditions until the first manual METAR was produced at 1800 UTC. Now that AWS provide forecasters with data every minute of every day, this greatly improves their ability to detect the early signs of change.

Other essential sources of meteorological information include:

ARFORs – the 17 Area Forecasts covering New Zealand give forecast winds up to 10,000 feet, cloud, freezing level, visibility, and significant weather such as turbulence.

SIGMETs – these forecast severe weather conditions that may be hazardous to flight.

MetFlight-GA has weather radar imagery from five sites, showing the extent, intensity, and movement of precipitation over much of the country. Both infrared and visible satellite imagery is also available (visible imagery is good for seeing where cloud and fog is around the country), as well as mean sea level analysis and prognosis charts.

Make use of web cameras around the country too, and any contacts you have at aerodromes or en route by calling them to ask what the weather is doing. Use both automatic METARs and these personal observations to help build on the picture you gain from studying the ARFORs and TAFs. ■

Timely **Reminders**

Medical

This is a good time of the year to look at when your medical certificate expires, or if you are a student, when you want to complete medical certification. If your health is good, and your Medical Examiner normally issues your medical certificate, then it should not take longer than usual, but do allow for the holiday period, especially if you want to fly during the summer.

October through summer is a busy time for the CAA Medical Unit, so it may take longer to process applications. The advice is simple: see your Medical Examiner as early as possible, and get any specialist reports in advance if possible.

We've produced a handy bookmark reminder to go in your logbook for you to jot your medical and BFR renewal dates on, see page 25.

Licensing

If you are applying for the issue or amendment of CAA Licences, please get your applications in early if you require your licence before the Christmas/New Year holidays. It can take up to 10 working days for your application to be processed as this is a very busy time for personnel licensing, and everyone considers their own applications urgent.

They are dealt with on a first-in, first-processed basis. Please do not call the Personnel Licensing Unit – this will not give your application greater priority, and it only takes staff away from the important job of issuing the many licence applications.

Be aware that, if applying for a new licence, you will need to meet the fit-and-proper person requirements of the Civil Aviation Act, and that obtaining the necessary information can take several weeks. As a rough guide, allow six weeks before your flight test to complete the FPP process. ■

IA (Inspection Authorisation) **Certificate** – Initial Issue Course

The CAA is planning to run an Initial Issue IA Course on 21-23 October in Auckland.

Depending on numbers, we may run an extra course in the South Island.

If you are interesting in attending the course, or require further information, please refer to the CAA web site under the heading *"Maintenance Engineers – Courses and Seminars"*, or contact:

Mark Price
AME Examiner
Tel: 04–560 9619
Fax: 04–569 2024
Email: pricem@caa.govt.nz

Workshop for **Senior Persons** – Hokitika

The CAA is holding a further training workshop for Senior Persons responsible for Air Operations in organisations with Part 119 / 135 certification, Chief Pilots and Chief Flight Instructors from Part 137 and Part 141 organisations.

The two-day course aims to equip senior persons with the knowledge and tools they need.

Register via the CAA web site, see "Seminars and Courses".
A registration fee of $100 will be charged to help cover costs.

October 13 – 14
Beachfront Hotel,
111 Revell St, Hokitika

New Products

Wake Turbulence

The *Wake Turbulence* Good Aviation Practice (GAP) booklet has been revised and updated. It has new sections on Helicopters, Occurrence Reporting, and Recovery Techniques.
The Occurrence Reporting section mentions the ICAO review of wake vortex encounters, and how to report them.

Maintenance Record Sheet

The Maintenance Record Sheet is to assist those people performing maintenance or inspections when away from base. The tear-off sections can be included as loose leaf entries in the logbook.

Bookmark

This is a bookmark designed to mark the current page in your pilot logbook. As a handy reminder, it has spaces to note the renewal dates for your BFR and Medical Certificate.

Dangerous Goods Poster

This poster is a familiar sight at airports, especially at the check-in counters. We've updated and refreshed it, and added handy phone numbers for passengers to report aviation safety and security concerns.

In, Out and Around Auckland

The revised Auckland area GAP booklet incorporates the latest airspace changes (effective 20 November 2008). It has sections on Ardmore, Drury, Great Barrier Island, Kaipara Flats, Mercer, North Shore, Parakai, Waiheke Island, and Whenuapai, as well as Auckland aerodrome.

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 comp-etition, 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 below, 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*
15 Jan 09	20 Oct 08	27 Oct 08
12 Feb 09	17 Nov 08	24 Nov 08
12 Mar 09	29 Dec 08	5 Jan 09

OCCURRENCE BRIEFS

LESSONS FOR SAFER AVIATION

The content of *Occurrence Briefs* comprises notified aircraft accidents, GA defect incidents, and sometimes selected foreign occurrences, which we believe will most benefit operators and engineers. Individual accident briefs, and GA defect incidents are available on CAA's web site. Accident briefs on the web comprise those for accidents that have been investigated since 1 January 1996 and have been published in *Occurrence Briefs*, plus any that have been recently released on the web but not yet published. Defects on the web comprise most of those that have been investigated since 1 January 2002, including all that have been published in *Occurrence Briefs*.

ACCIDENTS

The pilot-in-command of an aircraft involved in an accident is required by the Civil Aviation Act to notify the Civil Aviation Authority "as soon as practicable", unless prevented by injury, in which case responsibility falls on the aircraft operator. The CAA has a dedicated telephone number 0508 ACCIDENT (0508 222 433) for this purpose. Follow-up details of accidents should normally be submitted on Form CA005 to the CAA Safety Investigation Unit.

Some accidents are investigated by the Transport Accident Investigation Commission (TAIC), and it is the CAA's responsibility to notify TAIC of all accidents. The reports that follow are the results of either CAA or TAIC investigations. Full TAIC accident reports are available on the TAIC web site, **www.taic.org.nz**.

ZK-EGP, NZ Aerospace FU24-950, 31 Mar 06 at 13:45, 5 SW Kaitaia. 1 POB, injuries 1 fatal, aircraft destroyed. Nature of flight, agricultural. Pilot CAA licence CPL (Aeroplane), age 44 yrs, flying hours 1347 total, 864 on type.

The aircraft had just carried out the first top-dressing run of the afternoon when it was seen to enter a righthand turn followed by a steep descent towards the ground. The aircraft disappeared into tall bush on a hillside. Witnesses heard the ground impact and saw a column of smoke rising up from the bush. The first person on the scene found the pilot deceased.

There was no evidence that the aircraft had suffered any mechanical problem that may have contributed to the accident. The probable initiator of the accident was a hung load of lime, which would have limited the climb performance of the aircraft. Factors contributing to the accident were the steep rising terrain and a high tree-line that restricted the turning options for the pilot. The aircraft appears to have aerodynamically stalled during a righthand turn, from which there was insufficient height to recover. The accident was not survivable. A full accident report is available on the CAA web site.

CAA Occurrence Ref 06/1135

G-OJTA, Stemme S10-V, 15 Nov 06 at 18:01, Mount Prospect. 2 POB, injuries 2 fatal, aircraft destroyed. Nature of flight, private other. Pilot CAA licence PPL (Aeroplane), age 69 yrs, flying hours 1130 total, 640 on type, 21 in last 90 days.

The pilot had been competing in the South Island Regional Gliding Championships. During a reversal turn, away from a ridge, the right wing of the glider struck terrain. The glider was destroyed, and both occupants were killed in the accident. A CAA field investigation concluded that the glider would have been susceptible to significant drift during the turn and that there was a likelihood of turbulence and downdraughts in the area at the time. A full accident report is available on the CAA web site.

CAA Occurrence Ref 06/4214

ZK-DYY, Smyth Model S Sidewinder, 25 Nov 06 at 8:50, Poutu Pt. 2 POB, injuries 2 fatal, aircraft destroyed. Nature of flight, private other. Pilot CAA licence PPL (Aeroplane), age 56 yrs, flying hours 910 total, 4 on type, 3 in last 90 days.

The aircraft was climbing away after takeoff from the Kaipara Harbour North Head beach, when it was observed to suddenly bank to the left, pitch nose down and dive into the sea. From investigation, it appears that the aircraft was flown into a steep climb, during which the aircraft aerodynamically stalled, entered an incipient spin, and was not recovered in the height available. Both occupants were killed in the accident. A full accident report is available on the CAA web site.

CAA Occurrence Ref 06/4354

ZK-IJD, Robinson R22 Beta, 16 Jul 07 at 14:00, Criffle Station. 2 POB, injuries, 1 minor, aircraft destroyed. Nature of flight, private other. Pilot CAA licence CPL (Helicopter), age 26 yrs, flying hours 1040 total, 120 on type, 7 in last 90 days.

The pilot was flying up a ridgeline at an altitude of 3000 ft amsl, when the helicopter started to become power limited. The pilot turned across the hill in attempt to regain rotor rpm but to no avail. The pilot then turned down slope in an attempt to regain rotor rpm, but this subsequently failed. The pilot then used the remaining power to attempt a controlled landing onto the hill. The main rotor blades struck the side of a gully, and the helicopter crashed onto its side.

CAA Occurrence Ref 07/2527

ZK-JOR, Rans S-6ES Coyote II, 9 Nov 07 at 13:48, Rangiora. 1 POB, injuries nil, damage substantial. Nature of flight, training solo. Pilot CAA licence nil.

The club reported that, during a ground-loop, the aircraft became airborne but failed to clear a fence. It landed heavily, coming to rest inverted. Propeller, fin, undercarriage, engine mount, cowling and main struts were damaged.

CAA Occurrence Ref 07/4118

GA DEFECTS

The reports and recommendations that follow are based on details submitted mainly by Licensed Aircraft Maintenance Engineers on behalf of operators, in accordance with Civil Aviation Rules, Part 12 *Accidents, Incidents, and Statistics*. They relate only to aircraft of maximum certificated takeoff weight of 9000 lb (4082 kg) or less. These and more reports are available on the CAA web site. Details of defects should normally be submitted on Form CA005 or 005D to the CAA Safety Investigation Unit.

The CAA Occurrence Number at the end of each report should be quoted in any enquiries.

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 350BA

Aerospatiale AS 350BA Fitting, P/N 366A54-1088-00

While in the cruise the aircraft yawed unexpectedly, and rotor rpm and torque went high. The pilot immediately reduced the throttle to bring the rotor rpm back within the flight range, then, with swapping between the throttle and collective, controlled the helicopter into a running landing. Maintenance investigation found the pressure accumulator fitting fractured at the attachment between the accumulator and sense line. This opened the circuit to ambient pressure, causing engine speed to increase before being arrested with the throttle. The manufacturers applied a 5000-hr life to these fittings following a similar failure. The accumulator is quite large; it can be mishandled during preflight inspections and is susceptible to high frequency vibrations. The fitting was replaced and an over-torque inspection carried out; no defects were found. TTIS 2599.35 hours.

ATA 7610 CAA Occurrence Ref 08/1284

Alpha R2160

Oil Pressure Gauge & Transducer

The pilot reported to the tower a low oil pressure reading and made a PAN call. The flight landed safely. An engine ground run did not identify any abnormal oil pressure readings. The aircraft has had a history of high and low oil pressure readings. The oil line from the transducer was flushed and the oil pressure gauge and transducer were replaced. The engine was ground run and the aircraft was returned to service. TTIS 443.7 hours.

ATA 7930 CAA Occurrence Ref 07/1525

Alpha R2160

Precision LY-16559 Carb float, P/N LY-16559

Aircraft was reported as running rich since new, requiring leaning of the mixture to develop full engine power and smooth running at low operating altitudes. It was discovered that the carburettor floats were sinking, causing excessive fuel in the carburettor. The manufacturer was advised, and replacement floats were fitted. TTIS 266 hours.

ATA 7320 CAA Occurrence Ref 07/1556

Beech 58

STEC Roll servo wiring, P/N 0106

During the pre-flight check on the aircraft the pilot found the roll servo sense reversed. Investigation found the wiring at the servo plug to be incorrect. A factory repaired roll servo had just been installed and a duplicate inspection carried out prior to a release to service being issued. The wiring was changed to provide the correct sense. The maintenance organisation has had staff training and reviewed their internal procedures to try and prevent any reoccurrence.

ATA 2200 CAA Occurrence Ref 07/3854

Cessna 152

Cessna 152 Ammeter, P/N S1320-5

The aircraft was taxiing when smoke began pouring out from behind the instrument panel. The investigation in to the source of the smoke discovered an electrical short across the terminal insulator on the back of the ammeter. The insulator was possibly damaged at some earlier stage. TTIS 6266 hours.

ATA 3910 CAA Occurrence Ref 07/2688

Cessna 152

Cessna 152 Nosewheel steering tube

The pilot reported he was unable to use righthand rudder during flight. Investigation revealed the RH nosewheel steering tube had failed internally, causing the rudder system to jam when RH rudder was applied. The steering tube was dismantled, and it was found that the internal shoulder that retains the spring and washer was worn. This allowed the washer and spring to pass over the shoulder; it jammed in this position and prevented RH rudder selection in flight. TTIS 8628 hours.

ATA 3250 CAA Occurrence Ref 07/697

Fletcher FU24-950M

Fin-L/E, P/N 242309-2L

While performing the fin leading edge inspection in accordance with the airworthiness directive DCA/FU24/176C, two lines were observed in the paint either side of the fin's leading edge. The fin was removed and the area paint stripped to allow closer inspection of the skin. No cracks were found. The lines were thought to be caused by the fin's lower cover being fitted while the paint was still wet, which left an indent mark which looked like a crack. TSI 51.04 hours, TSO 451.01 hours, TTIS 451.01 hours.

ATA 5530 CAA Occurrence Ref 07/3915

NZ Aerospace FU24-954

PAC FU24-950 Walter Engine attachment bolt, P/N NAS 6606-56

During the takeoff run the nose section of the aircraft suddenly pivoted to the right by about 50 mm and the engine controls jammed, preventing the pilot from shutting down the engine or feathering the prop. The pilot jettisoned the load and intentionally ground-looped the aircraft. The investigation found that the lefthand top engine mount bolt had broken as a result of not being adequately torqued. The bolt failure was attributed to fatigue caused by movement in response to applied engine loads. The fatigue life for the engine mount bolts has been reduced from 1600 hours to 900 hours by the STC holder, and a recheck of the bolt torque is now required every 300 hours. TSI 14.4 hours, TTIS 1648.54 hours.

ATA 7120 CAA Occurrence Ref 07/1292

Piper PA-38-112

Piper PA-38-112 Oil Temperature Gauge

During a cross-country flight, the pilot noticed a high engine oil temperature indication. He diverted to the nearest aerodrome. When contacted, the maintenance provider suggested that the pilot should cycle the battery master switch. This was carried out and a normal temperature indication was obtained. The pilot then flew the aircraft to home-base, where the aircraft was checked and the oil temperature was found to be indicating correctly. The maintenance provider notes that the defect appears to be an ongoing intermittent problem with the electrical gauges in the PA-38.

ATA 7930 CAA Occurrence Ref 08/775

Aviation Safety Coordinator Training Course

The number one function of any company is business success.
Safety is critical to business success.

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Where and When

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58 Waipuna Rd, Mt Wellington, Auckland

Check the CAA web site, www.caa.govt.nz under Seminars and Courses for an enrolment form and further information. Places are limited, and they usually fill up quickly, so enrol early.

Or contact Rose Wood,
Tel: 0–4–560 9487,
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Auckland