

VECTOR

POINTING TO SAFER AVIATION

Flying IFR in Uncontrolled Airspace



Topdressing Safety
Guideline

Collective Disagreements

Attention Part 135
Operators



CIVIL AVIATION AUTHORITY
OF NEW ZEALAND

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The use and misuse of helicopter controls – and no control at all – are discussed in this article.



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Attention Part 135 Operators

Certificated Operators need to apply for re-entry before their Air Operator Certificate expires. This is a timely reminder for Part 135 operators to apply for re-entry in plenty of time, as certificates cannot be extended.

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Published by

The Communications and Safety Education Unit of the Civil Aviation Authority of New Zealand, P O Box 31-441, Lower Hutt, New Zealand.
Tel: +64-4-560 9400, 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.

Publication Content

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Attitudes, Airmanship, and Accidents

Hazardous attitudes – what role do they play? Situational factors in aircraft accidents

Circle these dates on your calendar for the final 2006 series of CAA AvKiwi Safety Seminars. *Attitudes, Airmanship, and Accidents* is an interactive seminar that focuses on the roles that pilot attitudes and situational factors play in aircraft accidents.

The seminars will be presented by Jim Rankin, RNZAF Instructor, or Carlton Campbell, CAA Training Standards Development Officer.

Spot Prizes

There will be a spot prize given away at each seminar – a full set of the current VNCs **or** an *AIP New Zealand Vol 4*, with a 12-month amendment subscription (compliments of Airways New Zealand). Check out the CAA web site for further information, www.caa.govt.nz, see “Safety information – Seminars”.



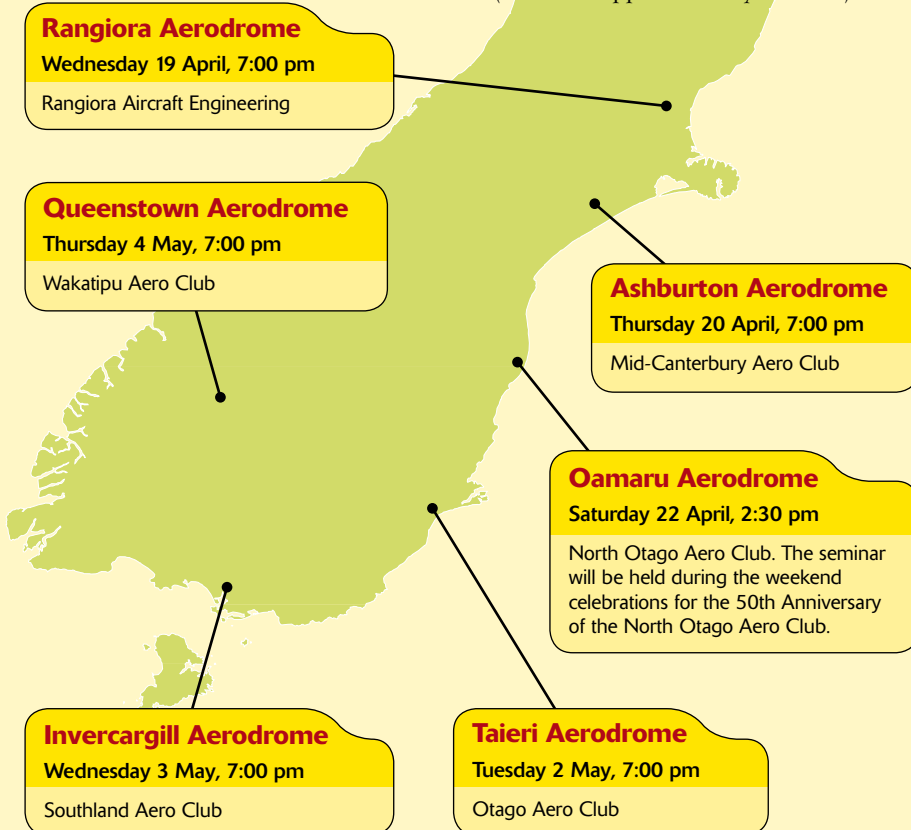
Left: AvKiwi seminar at CTC Aviation Training (NZ) Ltd, Hamilton – Presenter Carlton Campbell, CAA.



Rose Wood CAA with Hamilton spot prize winner Peter Bouma.

Seminar Schedule

(duration approximately 2 hours)



Attendances have been very good around the country so far, with the seminars being well received. Thanks to everyone who made the effort to attend and participate. Thanks also to Airways New Zealand for providing the spot prizes.

Spot Prize Winners

Tauranga	Michael Feeny
Taupo	James Bowker
Gisborne	Jeffrey Maw
Hastings	Roger Crow
Feilding	Darrell Bradshaw
Paraparaumu	Brett Hawes
Hamilton	Peter Bouma
Ardmore	Brian Hosking
North Shore	Renata Thomas
Whangarei	Alan Bailey
Kerikeri	Jim Naylor

More winners will be announced in the next issue of *Vector*. ■



Flying IFR in Uncontrolled Airspace

Considerations for IFR and VFR Pilots

Operating IFR in uncontrolled airspace increases the workload and potential stress for an IFR pilot. When in uncontrolled (Class G) airspace the pilot is responsible for avoiding other traffic (IFR and VFR) and maintaining adequate obstacle clearance. It is, therefore, vital for the IFR pilot to maintain a high standard of navigation and communication at all times.

This article is aimed at IFR and VFR pilots as they are both responsible for avoiding each other in uncontrolled airspace. Clear communication, good airmanship, and an understanding of the considerations for both IFR and VFR operations are critical. If you are a VFR pilot, it is advisable to find out more information about the IFR environment. Ask your instructor about the IFR approach paths at your local aerodrome. Additionally IFR pilots need to remain familiar with VFR operations and procedures.

Pertinent points for VFR pilots are distinguished by blue text.

IFR Departures from Unattended Aerodromes

Unattended aerodromes include controlled or Aerodrome Flight Information Service (AFIS) aerodromes outside the hours of attendance.

The pilot of an IFR aircraft departing from an aerodrome in uncontrolled airspace, must obtain a clearance to enter controlled airspace in sufficient time to ensure that conditions of entry can be met. When requesting a clearance prior to departure, the pilot must nominate an estimated time of departure (ETD).

If the aerodrome is located adjacent to controlled airspace, in order to integrate the aircraft with other traffic, ATC may initially instruct the aircraft to remain outside controlled airspace and advise the pilot when a route clearance will be available. Alternatively, a route clearance may be issued that becomes valid only when specified by ATC. Remember that you cannot enter controlled airspace unless a valid clearance has been issued by ATC, and at any time altitude or tracking requirements of the clearance have to be met.

Before departure, ensure you have the correct QNH altimeter setting for the Area QNH Zone that you are flying in.

To assist VFR traffic flying in the vicinity of the aerodrome, it is recommended that you make your IFR radio call in terms that are clear to VFR pilots. For example, a "SID 34 departure" may not mean anything to a VFR pilot. As a minimum, add a



geographic reference to the end of the radio call, for example, “climbing to the north to 3000 feet”. Alternatively, use a radial or track from the navigation aid, for example, “climbing 5000 feet, tracking 040 degrees from the Alexandra NDB”.

If you are departing from an unattended aerodrome, you are required to obtain traffic information either by telephone from the nearest ATS unit or by RTF, the latter provided if it is known that two-way communication can be established with ATS prior to departure, or **prior to** entering Instrument Meteorological Conditions (IMC).

If you are departing from an unattended aerodrome that does not have a published instrument departure, you can depart VFR and change to IFR at a defined point en route (flight rule Z) at, or above, the applicable route minimum safe altitude (MSA). Note that if you file an IFR flight plan (flight rule I) you can depart only during the day and you must be able to maintain terrain clearance visually to, or above, the enroute MSA, VORSEC or DME chart step. You are also to ensure that the climb performance of the aircraft is adequate to provide obstacle clearance prior to reaching MSA.

Be aware that the search and rescue process will begin if you fail to report to ATS within 30 minutes of your supplied ETD from an unattended aerodrome. At some unattended aerodromes (for example Hokitika) you are able to contact Christchurch Information on the ground by RTF. If you call Christchurch Information advising that you are ready for departure, the search and rescue process will be initiated if you do not call airborne within 15 minutes.

Enroute IFR in Uncontrolled Airspace

Traffic Information

When you leave controlled airspace, the controller will normally advise that you are “vacating controlled airspace”. Once you have left controlled airspace, you now have responsibility for avoiding other traffic and maintaining adequate obstacle clearance from terrain. Maintaining adequate terrain clearance is the easy part, as long as you follow the published track and are above the applicable minima.

Separation from other traffic is trickier. To assist pilots, ATS will provide traffic information as part of a Flight Information Service (FIS). Traffic information is issued to alert a pilot to other known or observed traffic in the proximity, to help the pilot avoid a collision. This is provided in controlled and uncontrolled airspace, but services in controlled airspace have priority. ATS provide IFR aircraft with traffic information about other IFR traffic; **traffic information about VFR aircraft may be provided when practical upon request from the pilot**. ATS will provide the pilot with traffic information:

- Prior to departure.
- Before changing altitude or flight level.
- Before vacating controlled airspace.
- Anytime en route as required.
- Prior to commencing an instrument approach.

Information on the movement of other IFR flights will include information on IFR flights operating in the vicinity of the track of the aircraft concerned at the same level, or at the level through which the aircraft will pass. The phrase “No reported IFR traffic” will be used when no IFR flights are known in the area.

In the situation where a known or observed aircraft is on a conflicting path with an identified aircraft, the radar controller may (in uncontrolled airspace) warn the pilot of the identified aircraft. The method used by the controller to assist the identified aircraft in sighting the other aircraft will normally include relative bearing in terms of the 12-hour clock, distance and apparent movement and, if available, its unverified Mode C altitude read-out.

It is important to remember that radar assistance does not relieve you of the responsibility of avoiding other aircraft. Do not rely on radar helping you out in avoiding other aircraft, as the radar controller can only provide traffic information about aircraft that are in radar coverage. The quality of the traffic information will depend on whether the aircraft have their transponders on with ALT selected.



Communication

When flying in uncontrolled airspace take full advantage of having two radios for setting up and monitoring frequencies. Listening out early on the aerodrome frequency where you are intending to carry out an instrument approach will give you an awareness of the traffic operating in the vicinity of the aerodrome.

You are required to establish and maintain two-way communication as necessary with the ATS unit providing flight information and report:

- Departure time as soon as practicable after departure from an unattended aerodrome.
- Position en route at intervals not exceeding 30 minutes.
- When changing level.
- Prior to entering controlled airspace.
- Prior to commencing an instrument approach at an unattended aerodrome.

Navigation

A FIS is provided in Class G airspace within radar coverage. In this situation the pilot may request the assistance of ATS to confirm the aircraft’s navigation. This can take the form of:

Continued over...

- Confirmation of correct tracking to avoid controlled airspace or special use airspace.
- Confirmation that the current track to, or from, a specified location is correct.
- A request for distance or track to, or from, a location.
- Any other navigation assistance information as required.

Remember, however, that when radar service is provided in uncontrolled airspace, you are responsible for maintaining adequate obstacle clearance and for IFR navigation.

In uncontrolled airspace, if you have to descend below an MSA, due to icing, for example, radar terrain information is not always available. If, however, you declare an emergency, radar will help wherever possible. Essentially, in uncontrolled airspace, descent below MSA is not possible. This means that in situations where icing is a concern, an alternative route may have to be flown.

Magnetic Track Cruising Levels

In uncontrolled airspace, it is very important that IFR and VFR aircraft maintain the appropriate magnetic track altitude or flight level requirements for separation from other traffic.

This is particularly important in the South Island, where there is a significant amount of uncontrolled airspace and radar coverage is less than in the North Island. There have been instances recently where IFR aircraft have encountered VFR aircraft flying at IFR cruising levels.

Refer to *AIP New Zealand* Table ENR 1.7-2 for the correct cruising level.

**Table ENR 1.7-2
New Zealand FIR – Table of Cruising Levels**

Track from 270° to 089° MAG Altitude or Flight Level		Track from 090° to 269° MAG Altitude or Flight Level	
IFR	VFR	IFR	VFR
11,000ft	11,500ft	12,000ft	12,500ft
9000ft	9500ft	10,000ft	10,500ft
7000ft	7500ft	8000ft	8500ft
5000ft	5500ft	6000ft	6500ft
3000ft	3500ft	4000ft	4500ft

A sample of possible cruising levels for IFR or VFR aircraft in uncontrolled airspace from the *AIP New Zealand* Table ENR 1.7-2.



IFR Arrivals at Unattended Aerodromes

It is important to provide an estimated time of arrival (ETA) at the unattended aerodrome as it forms the basis of the emergency action that may begin if an IFR aircraft fails to arrive within 15 minutes after ETA at the destination aerodrome.

Communication and Separation

It is prudent to make an ETA call to local traffic, warning any aircraft that you will shortly be commencing an approach.

Remember your IFR flight is not over if you become visual at an unattended aerodrome, as you may need to slot into a busy circuit pattern. Some unattended aerodromes can be very congested with VFR traffic, and it is important to communicate your intentions clearly and to configure your aircraft appropriately, especially if it is faster than others in the area. To assist your situational awareness, it is important to have an understanding of local VFR procedures and reporting points. Carry a Visual Navigation Chart (VNC) and ensure you have studied it before flight. This is particularly prudent for busy unattended aerodromes such as Taupo and Ardmore.

VFR aircraft can help to minimise the IFR pilot's workload by staying clear of the main IFR approach paths (most of which are marked on the VNCs). VFR pilots operating in the vicinity of an aerodrome with an IFR approach need to be especially vigilant if weather conditions mean an IFR aircraft will be flying the approach IMC. In these conditions, VFR aircraft should remain clear of the instrument approach path and well below the cloud base. IFR pilots will be relying on radio communication to provide separation from other traffic. It is very important that VFR pilots respond with their own position when they hear an IFR aircraft on approach. If they do not, then the IFR aircraft may assume that there is no traffic and may not have made allowance for the need to join the established circuit.

Some IFR aircraft will be TCAS-equipped, which will assist them in awareness of other traffic with active transponders. **It is important that all aircraft have their transponders on, with ALT selected, in all classes of airspace.** IFR pilots are reminded of the need to look out visually and not become over-reliant on TCAS.

VFR aircraft position reports when an IFR aircraft is on the approach should ideally include bearing and distance from the aerodrome, or position in the aerodrome circuit pattern. A position report relative to the nearest visual reporting point may not be that helpful to the IFR pilot. It is important to make frequent position reports, as IFR aircraft will be descending to low levels close to the aerodrome.

At uncontrolled aerodromes inside radar coverage you may, depending upon the controller's workload, stay with the controller for a reasonable amount of the approach before changing to local traffic. During this time, it may be prudent to monitor the local frequency for awareness of local traffic at the destination aerodrome. If there is a lot of RTF congestion, however, the monitoring of the local frequency at this stage may be distracting.

IFR pilots should broadcast their intentions as shown in Figure 1. IFR pilots should, in addition to the required

IFR radio calls, make position reports that are helpful for VFR pilots. For example, distance and direction from the aerodrome. Remember that if you are on an instrument approach at an unattended aerodrome that does not have a Mandatory Broadcast Zone (MBZ), there may be some VFR aircraft operating in the area NORDO.

All pilots must follow the standard RTF procedures for unattended aerodromes (refer to the Advisory Circular 91-9 and 172-1 *Radiotelephony manual* for more information).

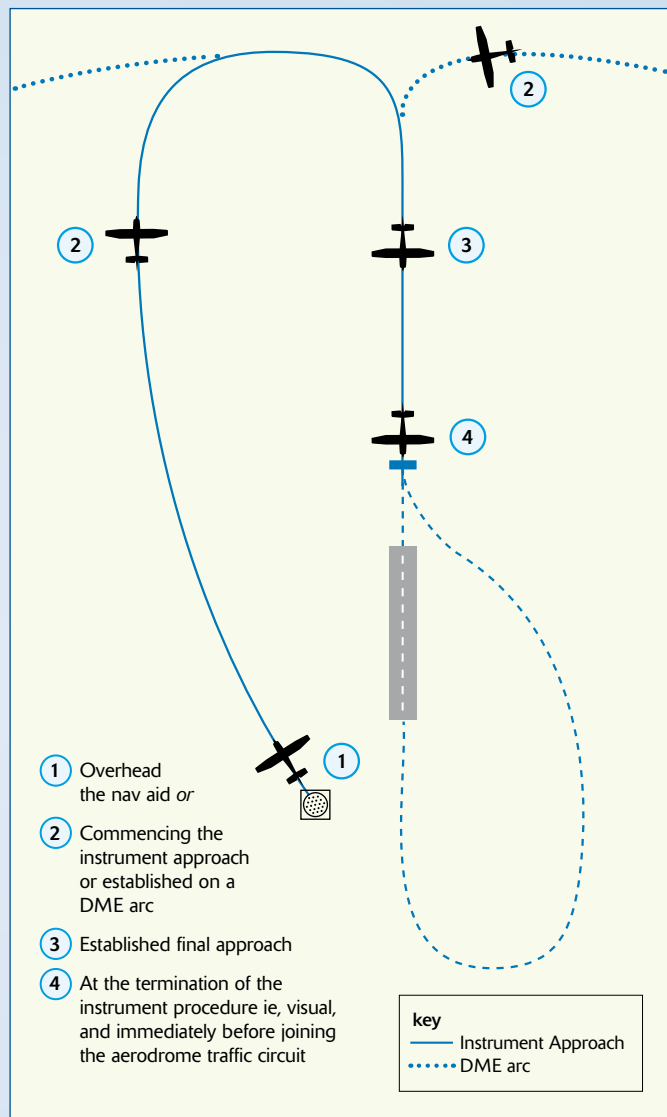


FIGURE 1: For the benefit of other traffic, IFR pilots should broadcast their position, altitude and intentions as shown. Reference AIP New Zealand ENR 1.1–11.

Minimum Altitude

It is important that the minimum altitude is not infringed. It is, therefore, critical to have the correct QNH set. While en route, the area QNH should be set, but prior to the intermediate and final approach segments of an instrument approach, this should be changed to the aerodrome QNH. If an accurate QNH is not available from an unattended aerodrome, the QNH from another aerodrome may be used, but a correction must be made to the MDA.

This can be achieved by:

- Adding 5 feet to the MDA for every 1 NM in excess of 5 NM from the source of the QNH.

- At some aerodromes, the QNH at another aerodrome may be used with a specified increase in the MDA. For example, at Hawera if the local QNH is not available, the New Plymouth QNH can be used with 140 feet added to the MDA at Hawera.
- At some aerodromes, a remote QNH cannot be used for determining MDA. In this situation, if the local QNH is not available, **the approach cannot be used**. At such aerodromes the QNH instructions will state “Use (LOCAL) QNH only”.

At an uncontrolled aerodrome where a non-DME instrument approach (ie, NDB or VOR only) is being carried out, MDA should be attained as soon as possible after the end of the base turn, as VFR aircraft may be operating close to the base in the vicinity of the aerodrome or navigation aid. To assist in making your aircraft more visible, turn your landing lights on.

Circling Approach

If a circling approach is required, you may descend below the circling MDA provided that 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. In addition, the visibility must be equal to or greater than that prescribed for the instrument approach procedure, and one of the visual references listed in rule 91.413 *Takeoff and landing under IFR* (for example, runway threshold markings) is distinctly visible and identifiable.

There is a limited obstacle clearance during the circling manoeuvre; for Category A and B aircraft it is 300 feet. It is, therefore, recommended not to leave the circling MDA until you can maintain a constant 3-degree profile all the way to the runway. This is very important at night, as it is the safest way to ensure obstacle clearance.

Be aware during a circling approach of the likelihood of opposing VFR traffic in the vicinity of the aerodrome.

Missed Approach

At some unattended aerodromes, the missed approach may take you into controlled airspace, and it is important that you understand the conditions associated with the missed approach, as a clearance will be required before entering controlled airspace.

Continued over...



Flight Plan Termination

You are required to terminate your IFR flight plan as soon as practicable on completion of the flight. To avoid the possibility of alerting action, it is important to terminate your flight plan within 15 minutes of your ETA at the destination aerodrome. When landing at a controlled aerodrome your plan will automatically be terminated. At an uncontrolled aerodrome you must contact an ATS unit to terminate your flight plan. At some aerodromes the lack of radio coverage will mean that a telephone call will need to be made to the National Briefing Office once you are safely on the ground.

Summary

Flying IFR in uncontrolled airspace does increase the workload for the pilot. To minimise the risks associated with flying in uncontrolled airspace, it is important that IFR pilots maintain a high level of awareness of other aircraft in the area, and are well prepared to separate themselves from other IFR aircraft and from VFR aircraft.

VFR pilots can assist by understanding and maintaining awareness of an IFR aircraft's position and likely flight path.

For more information refer to the Advisory Circular on Single Pilot IFR, AC 91-11. ■

Note: The term separation in the context of this article has been used generally to describe the adequate spacing between aircraft to avoid the risk of collision. It does not infer separation standards that are used by ATC.

Advisory Circular Single Pilot IFR

A new Advisory Circular (AC), AC91-11 *Single Pilot IFR* is now available. The purpose of this AC is to provide information and guidance to pilots conducting single pilot IFR operations. The AC aims to improve awareness and good aviation practice to a wide range of scenarios that can occur in the IFR operating environment.

Single Pilot IFR stresses the importance of having a high standard of cockpit resource management. Some of the important issues to consider are:

- Pre-flight preparation – weather, fuel management, alternate aerodromes, minimum equipment lists, etc.
- Checklists – operationally friendly, emergency or abnormal checklists, etc.
- GPS – correct loading of flight plans including cross-checking against charts, RAIM warnings, etc.
- Autopilots – correct use to allow the pilot to monitor the flight's progress.

The importance of pre-flight preparation and having a firm resolve as to the philosophies to be adopted, and the standard operating procedures (SOPs) employed, is especially important on the descent and during the approach phase, as this is where most fatal IFR aircraft accidents occur.

It is a good idea to have a basic operating philosophy of planning for a missed approach and a diversion on every instrument approach, rather than thinking in terms of being able to land after the instrument approach. This subtle change of emphasis from planning to land, to planning for a missed approach will assist the single pilot to not infringe instrument approach minima. Landing off an approach should be considered only if one of the requirements of rule 91.413 (c) *Operation below DA, DH or MDA* is met.

To obtain a free copy of this Advisory Circular, visit the CAA web site, www.caa.govt.nz and click on "Rules and more – Advisory Circulars". To purchase paper copies call free 0800 GET RULES (0800 438 785).

Nominations Called for Director's Awards

The Director of Civil Aviation Awards are presented each year to an individual and an organisation with an outstanding safety ethos. The winners have gone out of their way to do the right thing. Their actions have directly resulted in safety standards being raised, and they have encouraged others in the aviation industry to do the same. The 2005 Organisation Award went to Aoraki Mount Cook Skiplanes and the 2005 Individual Award went to Keith Mackersy, General Manager Aviation Services at MetService.

Last year a new award was created, the Civil Aviation Authority Flight Instructor Award. This aims to recognise excellence in flight instruction and increase awareness of the importance of flight instruction to aviation safety. The award is open to all categories of instructor. The inaugural winner in 2005 was Mark Scott of the Canterbury Aero Club.

All three awards will be presented at the annual Aviation Industry Association conference in Rotorua, 26–28 July 2006.

Anyone can nominate an individual, an

organisation, or an instructor to receive an award. Nominations close on 20 June 2006 and should be sent to Manager Communications, Bill Sommer, with a few paragraphs on why your nominee should receive an Award.

Bill Sommer
Email: sommerb@caa.govt.nz
Fax: 0-4-569 2024

Post: P O Box 31-441, Lower Hutt





Topdressing Safety Guideline

Aircraft photographs courtesy of Wanganui Aero Work

On 2 February 2006, the final version of the *Safety Guideline for Farm Airstrips and Associated Fertiliser Cartage, Storage and Application* was agreed upon by the Agricultural Health and Safety Council, and subsequently signed off by the main participants, comprising the Council itself, the Department of Labour, and the Civil Aviation Authority (CAA). This means that the document is now an agreed official Guideline and key information source for those who supply topdressing products, and for members of the aviation and agricultural communities involved in the practice of topdressing.



The Guideline was developed following a Coroner's inquest into a fatal accident in Northland, which is believed to have occurred when the pilot could not effectively jettison his load of lime after he found himself in an emergency situation. The Coroner recommended that the CAA formulate and publish safety standards for farm airstrips and for storage and aerial sowing of fertilisers.

The Guideline (which is on the CAA web site in its final draft form) is now to undergo formal editing, formatting, and printing. This work is being coordinated by the Department of Labour and is scheduled for completion in May, when the document will be publicly released. This will be the culmination of nearly three years of cooperative effort and wide-ranging consultation involving Federated Farmers of New Zealand, the Department of Labour, the Agricultural Aviation Association (a division of the Aviation Industry Association), the CAA, and other associated organisations. We consider this to be a landmark achievement in the promotion of agricultural aviation safety.



At that time, the CAA had just been designated as the agency responsible for the administration of occupational safety and health within the aviation sector under the Health and Safety in Employment Act 1992. The ability to create a guideline such as this, affecting both the agricultural and aviation communities, would have been difficult prior to that designation, and the opportunity to do so was welcomed by the CAA.

The CAA is grateful to all parties for their involvement and efforts, and also for the very thorough collaborative consultation that was evident throughout the process. We look forward to seeing the finished article in print – its availability will be announced on the CAA web site and in *Vector*. ■

Collective Disagreements

Collective and cyclic pitch controls, and yaw pedals, are the normal primary flight controls found in a helicopter. Most of the time they routinely serve their allotted purpose, but occasionally they feature in an incident or accident sequence in new or unexpected ways. Some of these occurrences are reported to CAA, while others do not rate (at least in the operator's perception) as reportable. A useful rule of thumb in this regard is that if you have learned something from the occurrence, however minor, then someone somewhere else could also benefit from that lesson.



Duelling With Duals

A Eurocopter EC120 operator fitted dual controls (cyclic and collective) for a training flight – the collective lever had index marks to assist in correct alignment, and on installation these appeared to line up as intended.

On completion of the flight, normal shutdown checks were performed and the twist-grip throttle rolled to the shut-off position. However, the shut-off positions on the twist grip and the fuel control unit did not coincide, and a trickle of fuel was still able to reach the combustor. A 'hung' condition ensued, with the gas generator rpm stabilising at a lower than normal idle figure. With the resulting reduced airflow, a turbine overtemperature occurred before either pilot noticed – the engine was effectively 'cooked'.

The operator reported that the parts bill alone was \$129,000.

Subsequent investigation by the operator found that although the collective appeared to be installed correctly, the twist-grip spline was misaligned by one tooth, preventing the twist grip from rotating to the full cut-off position. There is no keyway or guide on the collective, other than the index marks, to ensure correct installation, so extra care is required. Parallax error on the index marks is something to watch for in particular. Monitoring engine parameters during shutdown and being ready to dry-motor the engine at the first sign of a temperature anomaly is a

good practice, not only on this type, but on any turbine engine.

Cyclic stick installation errors can occur on the AS 350/355 (Squirrel) series of helicopter. Several of these have been reported to CAA; at least one resulted in an accident, while others were detected before start and corrected. Some of the latter were unreported, although the grapevine has proved to be alive and well.

Control travel is limited if the stick is installed the wrong way round, and can (did) lead to an irretrievable loss of control once the machine is airborne.

Generally, a quick visual comparison with the other stick will establish whether it is the right way round – the offset of the hand grip is a prime clue here. If the systems permit a 'full-and-free' check while the machine is shut down, you should do one after installation. A modification for the Squirrel cyclic has been available since 1985 (Aerospatiale Service Letter 726-67-85 refers), and once embodied, permits installation the correct way only.



An AS355 cyclic – despite the distinctive curvature, pilots have been known to install the dual cyclic the wrong way round.

Note also that installation and removal of dual controls requires an entry in the aircraft maintenance log **and** a duplicate inspection.

Pax and Packs

When passengers are being carried in the second-pilot seat with dual controls installed, a careful briefing is essential. Passengers have been known to use the pedals as footrests – life suddenly becomes interesting when they turn around to their friends in the back, using the pedals for leverage. Loose items such as carry-on bags and cameras occasionally migrate to that seemingly magnetic space between the pedals. On short final, as you need to feed in that bootful of pedal, oops!

One passenger, boarding a helicopter at the hover, found a very useful handhold on that stick conveniently located in front of his seat. Fortunately, both he and the pilot survived the ensuing rollover. A farmer, leaving an agricultural helicopter after a briefing flight, tripped on the collective lever, also resulting in a rollover. In any rollover situation when the rotors are turning, the helicopter will generally be an insurance 'constructive total loss', that is, the cost of repairs will exceed the insured value.

Passengers have an uncanny ability to find new and exciting ways of interacting with the controls; again, we stress the importance of a thorough briefing. On a photographic sortie, a photographer managed to inadvertently

loop his camera strap around the rotor brake lever and pull it out of its detent. Detected in time, it didn't cause a problem. On another photo flight, a Jet Ranger pilot noticed a sudden restriction in rearward cyclic movement, and found that a camera had wedged under the dual cyclic 'stub'. Normally hidden by a soft leather sleeve, the stub was not readily apparent to the photographer. Not long after this event, the operator fitted a rigid cover to prevent future similar occurrences.



A photographer's bag placed here in flight could cause major control difficulties.

Even control covers can have their drawbacks. In the March/April 2002 issue of *Vector*, we published an item about BK117 pedal covers, describing an incident where it was found that the pedal travel could be restricted by the cover if the pedals were not adjusted to the fully forward position.

The Remotely-Uncontrolled Helicopter

One type of occurrence keeps popping up, if you'll pardon the expression, from time to time: a helicopter on the loose with nobody at the controls. It has happened to several different types, including the Schweizer/Hughes 269, MD/Hughes 369 and Robinson R22.

In certain extreme operational situations, it is difficult to avoid leaving the machine running while vacating the pilot seat. Where the drive train incorporates a clutch, disengage the rotor and wait until it stops rotating before leaving the helicopter. If this is not possible, your checks should include applying the throttle friction tightly once the rpm are at idle, likewise the collective and cyclic frictions, and applying the

collective lock if fitted. If there isn't a collective lock, enquire about having an approved one fitted. However, **leaving a running helicopter must never be regarded as routine – it is anything but.** Think about having to justify doing so if it resulted in a fatal or serious injury to a passenger or bystander. Just explaining the loss of the helicopter is hard enough!

The 269 can be especially prone to runaway flight if not properly secured. As the collective is raised, and it can vibrate up by itself if not locked, the correlation device increases engine rpm, and eventually enough rotor thrust can develop for the helicopter to take off. The subsequent evolutions are random, unpredictable and usually very spectacular, with the end result always assured. In one case some 30 years ago, an escaped 269 collided with a car in which two young children were sleeping – a heart-stopping sight for those on the airfield at the time, but luckily the children escaped injury.

Another trap is uneven ground, where in some situations the weight distribution on the skids is concentrated on the rear portion, and the machine is balanced – while the pilot is still seated. As he or she vacates, the centre of gravity changes position, and the machine rocks back on to its tail, usually reducing the tail rotor diameter in the process.

What If?

Many of the situations described here could have been avoided, but saying this is all very well in hindsight. This same sentiment was expressed in a recent *Vector* article on rotor strikes, but the message in these examples should serve to prompt some thought and discussion on how to avoid similar occurrences. The 'what if' approach to risk management is useful, as in thinking through one potential problem, you may think of a fresh one and evolve a solution in advance, which is infinitely better than trying to invent one once a situation has occurred. A classic example is the carrier pilot who ejected on takeoff after assessing the launch parameters as abnormal – he didn't have long in which to do it! Queried later as to when he made the decision to eject, his response was, "About five years ago". He was ready for the unexpected – or was it expected? ■



Air BP Hazard Management Kit

Following discussions at the last Aviation Industry Association (AIA) conference, Air BP has taken the initiative to produce a hazard management kit for aviation workshops and maintenance facilities. The kit includes:

Workshop Hazard Sheets

Workshop Hazard Posters

Workshop Hazard Labels

Workshop Inspection Guide

Involving Employees in Safety at Work (OSH publication)

Fuel Management (CAA GAP publication).

The purpose of the kit is to assist their customers to meet legal and social obligations, and to operate in a healthy, safe, and environmentally responsible way. For example, the Hazard Information Sheets help with the identification of typical hazards, and they list a number of safe operating tips.

The Director of Civil Aviation, John Jones says, "This is a great example of a company in the aviation business going the extra mile, and producing a workshop aid that will enhance safety when used appropriately."

For further information, or to obtain a kit for your workshop, contact:

The Air BP call centre
0800 666 333



Make the Switch to 406

A national campaign has been launched to encourage recreational boaters and commercial vessels, aircraft operators, trampers, climbers, and others involved in outdoor pursuits, to change their 121.5 MHz distress beacons over to a new 406 MHz beacon as soon as possible.

From 1 February 2009, satellite monitoring and processing of 121.5 MHz and 243 MHz signals by the international COSPAS-SARSAT system will cease. The limitations of the 121.5 and 243 MHz signal characteristics, together with the high number of false alerts generated by 121.5 MHz emergency locator transmitters (ELT), have led the international agencies involved in search and rescue, the International Maritime Organisation (IMO) and the International Civil Aviation Organisation (ICAO), to require ELTs to operate on both 406 MHz and a lower-powered 121.5 MHz.

“Given that everyone will have to change to a 406 beacon anyway, and the speed, accuracy, and reliability of the 406 MHz system could save your life – why wait? Make the switch to 406.”

The 406 MHz signal provides the COSPAS-SARSAT system with an initial alert and location. The Rescue Coordination Centre NZ (RCCNZ) can cross-reference the digital signal emitted by 406 MHz beacons with a database of registered 406 beacon owners, identifying exactly who is in trouble and their category – land, sea, or air. The 121.5 MHz signal is then used for final homing by search and rescue personnel.

The identification and location information encoded in a 406 MHz beacon signal can be picked up almost instantaneously if it is within the coverage area of a Geostationary Earth Orbit satellite (GEOSAR). 121.5 MHz signals cannot be picked up by GEOSAR satellites. They can only be picked up by Low-altitude Earth Orbit (LEOSAR) satellites. Due to the infrequent transits of LEOSAR satellites over New Zealand, the location of a 121.5 MHz distress signal can take hours longer to be relayed to search and rescue personnel. LEOSAR satellites use the Doppler processing technique to locate a distress signal, which uses the relative movement between the satellite and the beacon to determine a location. Two positions for each beacon signal are generated, the true position and its mirror image relative to the satellite’s ground track.

To confirm the true position, a second satellite pass is therefore required.

The CAA is in the process of developing a Notice of Proposed Rule Making (NPRM) to align New Zealand civil aviation rules with the new international frequency standards for ELTs and emergency position indicating radio beacons (EPIRBs).

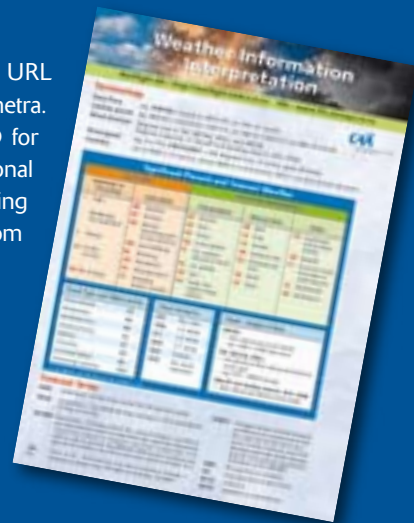
The NPRM will include the following proposed changes to existing rules:

- Aircraft entered on the New Zealand register on or after 1 January 2007 must have an automatic ELT installed capable of transmitting on 406 MHz and 121.5 MHz.
- Aircraft already on the New Zealand Register at the effective date of the rule amendment must have an automatic ELT installed, capable of transmitting on 406 MHz and 121.5 MHz, by 1 July 2008.
- Pilots of microlight aircraft operated more than 10 NM from the aerodrome of departure must carry a personal locator beacon (PLB), capable of transmitting on 406 MHz and 121.5 MHz, from 1 July 2008.
- Every 406 MHz ELT or EPIRB installed or used in a New Zealand-registered aircraft must be coded with the New Zealand country code, and either:

New Products

Weather Services card

The *Weather Services* card has been updated. The URL for MetFlight-GA has changed to <http://metflight.metra.co.nz>, and there are two new abbreviations: NCD for "No cloud detected", and NDV for "No directional variation". The latest version has a green band running across the card under the title, to distinguish it from previous versions.

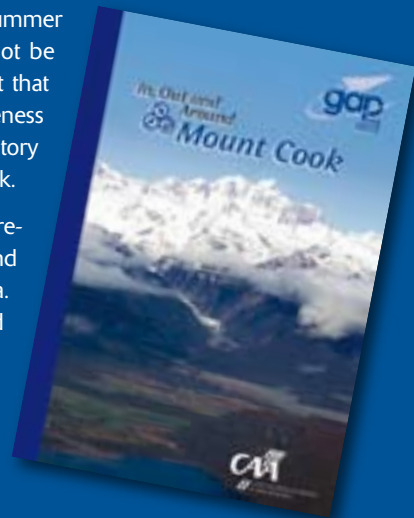


In, Out and Around Mount Cook

A new title in the "Good Aviation Practice" series has been published, called *In, Out and Around Mount Cook*.

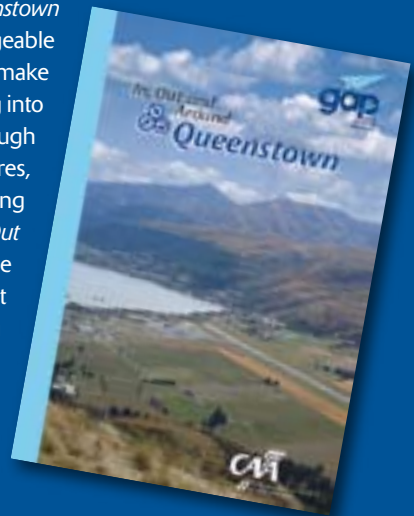
On a clear day with little wind, flying in the Mount Cook area can be a very picturesque experience. During summer months, pilots need to be aware that they may not be the only ones enjoying the scenery. It is important that all pilots maintain a high level of situational awareness when operating in the Southern Alps Mandatory Broadcast Zone (MBZ) that surrounds Mount Cook.

In, Out and Around Mount Cook provides a comprehensive overview of the weather conditions and expected flight conditions in the Mount Cook area. It also covers some mountain flying techniques, and airspace and aerodromes procedures in the MBZ. This booklet will be a useful reference if you are a first-time visitor to the area. We recommend that those unfamiliar with the area spend time studying this booklet, and revise their mountain flying knowledge, before flying in the area.

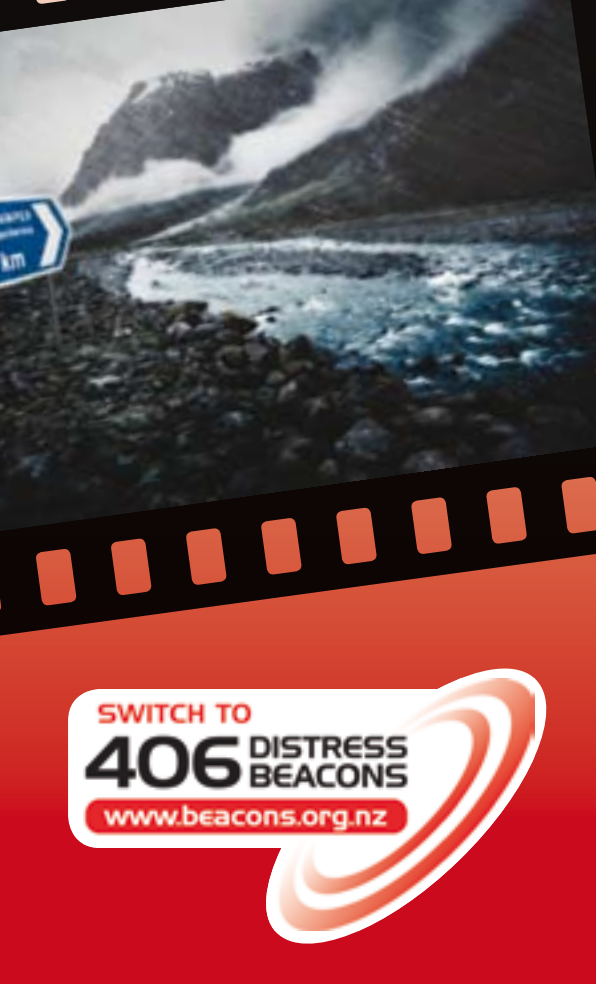


In, Out and Around Queenstown

A revised edition of *In, Out and Around Queenstown* has been published. Mountainous terrain, changeable weather, and a high density and variety of traffic, can make Queenstown a challenging destination. Before flying into the Queenstown area, a pilot should have a thorough understanding of the airspace and local procedures, and have a sound knowledge of basic mountain flying techniques (refer to the *Mountain Flying GAP*). *In, Out and Around Queenstown* gives an overview of the airspace and regular aircraft activities in the area. It also details the arrival/departure procedures, giving aerial photographs of important visual reporting points. Aerodrome circuit procedures, aircraft performance considerations, and general radio procedures are also discussed. This booklet will be a useful reference, whether you are a first-time pilot to the area or a regular visitor.



These two GAP booklets and the *Weather Services* card are available free from most aero clubs and training schools, from your local Field Safety Adviser, or by email: info@caa.govt.nz. They can also be viewed on the CAA web site, www.caa.govt.nz, by clicking on "Safety information – Publications". ■



SWITCH TO
406 DISTRESS
BEACONS
www.beacons.org.nz

- the ELT serial number;
- the 24-bit aircraft address;
- the aircraft operating agency; or
- the aircraft nationality and registration marks.
- The aircraft operator must notify RCCNZ of the ELT coding details and the operator emergency contact details, and must notify RCCNZ of any changes to those details.

It is anticipated the NPRM will be published for public comment in March or April 2006.

Keep in mind that, as the deadline gets closer, it may be harder to find an engineer with the time to install a 406 MHz ELT in your aircraft, especially if numerous others leave it to the last minute too. So plan to change over as soon as possible. When disposing of your old 121.5 MHz ELT, please ensure it is disabled first to avoid unnecessary search and rescue action.

To find out more about changing to a 406 MHz beacon, and where you can purchase one, go to www.beacons.org.nz. Given that everyone will have to change to a 406 beacon anyway, and the speed, accuracy, and reliability of the 406 MHz system could save your life – why wait? Make the switch to 406. ■

First-Aid Kits

First-aid kits are required to be carried on aircraft used for air transport operations and on any aircraft with 10 or more passenger seats. There are no rules that specify what a first-aid kit must contain.

It is important to have a well-stocked first-aid kit in the aircraft you fly, regardless of whether you are required by the rules to have one or not.



Suggested Contents

To help pilots put together their own first-aid kit, or assess which pre-packed first-aid kit to buy, here are some guidelines on suitable first-aid kit contents. This is just a starting point; you can add extra items to your kit to suit your own individual requirements. We have not recommended how many of each item you should include, as this will depend on the seating capacity of your aircraft.



First-aid manual

Simple instructions on how to deal with common first-aid situations. Keep this at the top of your kit.



Tweezers

For removing splinters and stings.



Disposable gloves

For infection control.



Survival blankets

If you do not already have these on board in a survival kit, include one blanket per seat.



Pen and notepad

For taking notes about an accident.

Plasters

A range of different sized plasters for small cuts and blisters.



Triangular bandages

These can be used as a sling or as a large bandage.



Scissors

For cutting bandages and clothing.



Crepe bandages

To hold dressings in position and support injured limbs. Several required.

Hypoallergenic tape

To hold dressings and bandages in place.



Saline solution/sterile water

To clean eyes, wounds and burns.



Pain killers

Paracetamol tablets.



CPR mask/mouth shield

For infection control when performing CPR.



Dressings

Several sterile dressings, both non-adhesive and adhesive, for burns, abrasions, and cuts.



Safety pins

Several, of different sizes, for securing bandages.

All these items should be stored in a container that is waterproof and resealable.

We recommend that you do **not** include:

- **Antiseptic cream or solution.** Creams can grow bacteria after they are opened, and if liquid solutions are not diluted correctly (difficult to achieve in an aircraft accident situation) they can cause burns to a wound. Instead, simply clean a wound with saline solution or clean running water.
- **Cotton wool or tissues.** These can leave fibres behind in a wound that will slow the healing process.

Organising the Contents

If your first-aid kit is in a plastic container without divisions or pockets to separate items, snap-lock style plastic bags can be used to organise the contents. Group bandages, dressings, gloves, etc, in different snap-lock bags. This will allow you to empty out the contents of your kit without getting things dirty, making it easier to survey the contents and find what you need quickly in an emergency. Trying to sift through the contents while keeping them all in the box could be frustrating and stressful.

Snap-lock bags will help keep the items in your kit waterproof in case the container leaks. They can also be used for carrying water, or disposing of dirty dressings. They can be used to irrigate wounds with water if the corner is cut off then squeezed like a cake decorator, as well as being used as an improvised glove.

Other Factors

It is recommended that operators who are required to have a first-aid kit should decide on its contents by taking into account: the operating environment, routes to be flown, the type of operation, the number of passengers carried, and any likely medical requirements.

It is a good idea to keep a contents list inside your kit and have it inspected against the list:

- every 12 months,
- when crew have reported that the kit has been used, or
- when an item in the kit has reached its expiry date.

The first-aid kit inspection should also confirm that its location and placarding are in accordance with rule 91.523. This requires the kit to be readily accessible for the treatment of injuries in flight, and any compartments or containers with kits inside must be marked to indicate location. Also check that the location of the first-aid kit minimises damage to the kit itself, or injury to aircraft occupants should the kit become detached (such as during an accident).

Private operators who are not required to have a first-aid kit should also take the above factors into account when placing a kit in their aircraft. ■

AICs Aren't a Pain

Our *AIP New Zealand* amendments arrive about a month before they are effective, so we put them to one side and diligently incorporate them when they are due. Don't we? We insert the new *AIP Supplements* and remove the old ones – hello, what's this other thing, *Aeronautical Information Circular (AIC)* dated some time ago? Surely it's out of date, out with it – but wait! Refer to *AIP Supplement 1* for the current year – it is an *AIP New Zealand* publication checklist, updated each cycle, and it will include details of current *AICs*.

AICs are a means of promulgating aeronautical information that does not qualify for inclusion in the *AIP New Zealand* or *NOTAM*, and this normally includes:

- A long-term forecast of any major change in legislation, procedures or facilities.
- Information of a purely explanatory or advisory nature liable to affect flight safety, or concerning technical, legislative or administrative matters.

ICAO Annex 15 *Aeronautical Information Services* Chapter 7 lists 20 sub-categories of these types of information, but it is not intended to reproduce these here. For the record, current *AICs* (as at 16 MAR 06) are:

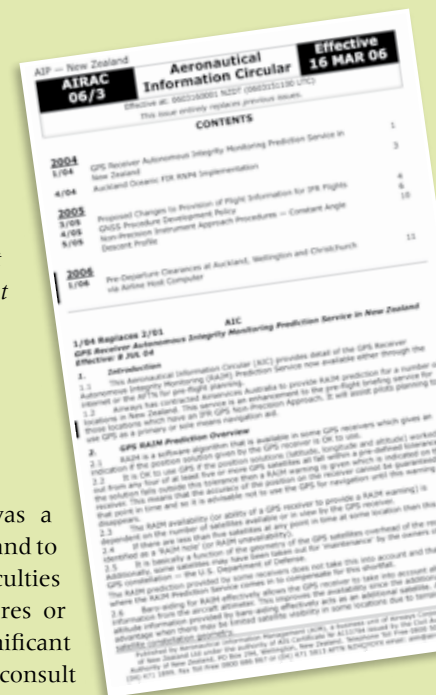
- **1/04** *GPS Receiver Autonomous Integrity Monitoring Prediction Service in New Zealand.*
- **4/04** *Auckland Oceanic FIR RNP Implementation.*
- **3/05** *Proposed Changes to Provision of Flight Information for IFR Flights.*

- **4/05** *GNSS Procedure Development Policy.*
- **5/05** *Non-Precision Instrument Approach Procedures – Constant Angle Descent Profile.*
- **1/06** *Pre-Departure Clearances at Auckland, Wellington and Christchurch via Airline Host Computer*

The trigger for this article was a comment by Airways New Zealand to the effect that one of the difficulties when proposing new procedures or making changes that affect a significant portion of industry, is how to consult or how to get the message across.

There always remains the question as to whether everybody who might be affected has been contacted. Although the ICAO way is to issue an *AIC*, it has been found that very few take notice of *AICs* until after the fact. An example is 4/05, where it was not until Airways notified the withdrawal of the Gisborne NDB that any user reaction occurred. The first iteration of that *AIC* was published some 18 months earlier.

Key phrases in both 3/05 and 4/05 respectively are, "Comment is invited" and "Should you have any comments ... please contact ..." – so feedback was being sought the whole while. Is there a message in there somewhere? ■



Attention Operators of Light Piston-Engine Helicopters

The first part of the Part 43 and 91 Draft Final Rule package is currently with the Ministry of Transport. It is expected the Minister will sign the final rules in June 2006 and set a date on which they become law. This is then promulgated in the *Gazette*. At this stage, July 2006 is the best estimate we have – the actual date, when known, will also be published on the CAA web site.

Some of the rule amendments deal with the overhaul of engines, propellers, and components. There is a new transition rule (Part 91 Appendix B) allowing 12 to 24 months for compliance with some of the 'new rules'.

The new rule (91.603) relating to the overhaul life of components allows the component to be operated "on condition" provided that the component is maintained to a programme accepted under Part 119 or approved under rule 91.607. It is this rule that will affect the operators of light piston-engine helicopters (such as Robinson R22/R44 and Schweizer/Hughes 269) being operated "on condition". The transition rule compliance requirements for these aircraft are as follows:

- Operators of aircraft that have exceeded the manufacturer's recommended TBO period in terms of hours in service will be required to overhaul the component before further flight, immediately the rule becomes effective. **There is no transition period.**
- For aircraft over the manufacturer's recommended TBO period in terms of calendar time, operators will be required to overhaul the components **within six calendar months** of the rule's effective date.

For further information, contact CAA,
email: info@caa.govt.nz.

Corrections

In the January/February 2006 issue of *VECTOR* there were two errors, and we apologise for this. Here are the corrections:

On page 15, the lake in the foreground of the photo is Lake Okareka (not Lake Okataina).

On page 18, refer to the flow chart for IFR alternates. The last paragraph in the middle box should read, "For a non-**precision** approach, ceiling of **800** feet or 200 feet above MDA...". (Corrections are bold.)

Young Eagles News



Six Young Eagles Scholarships have been awarded this year. The winners are each entitled to \$1500 worth of flying through their local aero club.

Ross Macpherson Scholarship Winners

- Andrew Lamond** – Canterbury Aero Club
- Ashley Notman** – Coromandel Flying Club
- Carl Newman** – Tauranga Aero Club
- Hayden Lowe** – New Plymouth Aero Club
- Scott Hantz** – Marlborough Aero Club

Around New Zealand Air Race Scholarship Winner

Timothy Ward – Canterbury Aero Club

Three of the Young Eagles scholarship winners, Ashley, Carl, and Hayden, were able to attend the RNZAC National Championships held at Whitianga 16 to 18 February 2006. The Young Eagles received financial assistance to attend the Nationals, where they were formally presented with their scholarships.

Ashley, Carl, and Hayden spent a day increasing their aviation knowledge with Young Eagles coordinator Robert Orr. In the afternoon, they competed for the Pickard Memorial Trophy by sitting aviation knowledge and general knowledge questionnaires on what they had learnt during the day. The winner of the Pickard Memorial Trophy was Hayden Lowe from New Plymouth Aero Club. Hayden won a cash prize of \$150 to go with his trophy.

To finish the day the Young Eagles enjoyed a flight along the coast to Pauanui. This was arranged by the RNZAC and provided by the Marlborough Aero Club.

At each year's Nationals, the CAA sponsors the CAA Trophy. This competition involves a pre-flight inspection of a specially prepared aircraft, and it is open to all pilots competing at the Nationals. This year, Russell Lovatt from Canterbury Aero Club spotted the most defects. Russell received a trophy and a lifejacket supplied by the CAA. ■



Hayden Lowe, 2006 winner of the Pickard Memorial Trophy.



Robert Orr explains draining fuel to Young Eagles (left to right) Ashley Notman, Carl Newman, and Hayden Lowe.

Microair T2000SFL Transponders



With the radar modernisation programme currently being undertaken by Airways New Zealand, some identification problems have been occurring, particularly to operators of aircraft equipped with Microair transponders (revisions 4 and 5). Even though these are Mode-C capable, the upgrading of the secondary surveillance radar (SSR) to Mode-S has meant that purely Mode-C transponders do not give a usable return when interrogated. This also has implications for TCAS-equipped aircraft, as a Mode C-only transponder can be effectively 'invisible' to the other.

The limitations of older Mode-C transponders are catered for by *Airworthiness Directives (ADs)*, requiring modifications to upgrade to Mode S operation. Microair confirms that their

T2000SFL units incorporating Revisions 4 and 5 are not Mode-S compatible, and that they will be issuing a Revision

6 Service Bulletin in due course. This will comprise a circuit board replacement and the installation of an additional digital filter. See their web site, www.microair.com.au for current information.

For transponder mode setting, there is no change to pilot procedures. A transponder, whether it is Mode C, only or Mode-S compatible, is still set to the ALT (or equivalent) function in flight; the signal it returns to the SSR depends on its internal circuitry and modification state.

Prohibition Issued

The Director of Civil Aviation has issued a prohibition under Section 21(2) of the Civil Aviation Act 1990. It prohibits the use of New Zealand registered aircraft issued with Special Category Airworthiness Certificates on external load operations.

The types of aircraft currently affected are the Westland Scout, Bell OH-58A, Westland Gazelle, and Westland Wessex Mk 2.

The reason for the prohibition is that these aircraft would be operating outside their original design parameters in this type of operation. Airworthiness trials on helicopters in this category have shown that this can have catastrophic effects on the safe service life of critical components.

The use of any Special Category helicopter for operations involving repetitive lifting poses a danger to persons or property.

The Prohibition Notice can be seen on the CAA web site, www.caa.govt.nz, under "About us – Legal Notices".



Ballooning

Proposed Advisory Circular

Guidance material is currently being developed for inclusion in a new *Advisory Circular (AC)* that is designed to assist pilots of hot air balloons comply with the general operating and flight rules contained in Part 91.

Hot air balloon pilots who are current, and operating regularly, are invited to contact Rex Kenny, Manager Sport and Recreation, email: kennyr@caa.govt.nz, and register their interest in assisting with the development of the document through reviewing draft material.

Planning an Aviation Event?

Do you have an event such as an airshow, air race, rally or major competition coming up soon? If so, you need to have the details published in an *AIP Supplement* to warn pilots of the activity in a timely manner. The information should be submitted to the CAA with adequate notice. (Refer to AC 91-1 *Aviation Events*.)

Please send the relevant details to the CAA (ATS Approvals Officer or AIP Editor) **at least** one week before the appropriate cut-off date indicated below.

Supplement Cycle	Supplement Cut-off Date (with graphic)	Supplement Cut-off Date (text only)	Supplement Effective Date
06/06	30 Mar 2006	06 Apr 2006	08 Jun 2006
06/07	27 Apr 2006	04 May 2006	06 July 2006
06/08	25 May 2006	01 Jun 2006	03 Aug 2006

Lifed Components

In the last issue of *Vector*, we published an article on rotor overspeeds, in response to a Transport Accident Investigation Commission safety recommendation formulated as a result of the investigation into the accident involving UH-1B, ZK-HSF, in Southland. A second recommendation was: "That the Director of Civil Aviation develop educational material for CAA airworthiness personnel and licensed maintenance engineers to raise awareness of the need for them to recognise and respond to documented inadequate identification of critical lifted components when checking aircraft maintenance documents."

The part in question was the failed tension-torsion (TT) strap in the rotor head. Although the investigation found that the TT strap had failed because of a recent rotor overspeed, it also noted that the strap did not have a serial number, despite being in all other respects fit for purpose. The strap was probably one of a batch supplied to the US military by a manufacturer other than Bell Helicopter. Bell stated that they had never produced a non-numbered TT strap. The US military records indicated that new straps had been fitted at the last overhaul, and at the time the helicopter was imported into New Zealand most of

the mandated overhaul life still remained. TT straps are scrapped at rotor head overhaul after 1200 hours in service, along with other hardware such as bolts not uniquely identified by serial number.

The one remaining set of this particular design of TT strap still in service in New Zealand has been checked and confirmed to be in compliance with the rules currently in force. An *Airworthiness Directive (AD)* imposing a calendar life on specified UH-1 series TT straps did not apply to those in ZK-HSF.

The recommended "educational material" already exists in the form of Advisory Circular (AC) 20-2A *Acceptability of parts*, which relates specifically to Civil Aviation Rules Part 21 *Certification of Products and Parts* Subpart K, and Part 43 *General Maintenance Rules* Subpart B. The AC provides acceptable methods of compliance with the relevant rules and also provides guidance on detecting unacceptable parts. The AC gives a URL (or web site address) for reporting suspected unapproved parts (SUPS) to the FAA – this URL has been superseded and will be updated at the next revision of the AC. In the meantime, the correct URL is: <http://www.faa.gov/aircraft/safety/programs/sups/>. ■

A Parachute is an Aircraft

The CAA has always treated parachutes as aircraft. There have been arguments against this, however. In order to help everyone understand, the CAA has published a Legal Information Bulletin on the topic.

This bulletin explains the background and definitions involved. It outlines the CAA position, concluding with, "It is the CAA's position that parachutes come within the definition of 'aircraft' contained in Part 1."

The Legal Information Bulletin can be seen on the CAA web site, www.caa.govt.nz, under "About us – Legal Information".



Attention Part 135 Operators

Many Part 135 operators have now reached, or are nearing, the end of the five-year term of their certificate. This is catching some out because their applications for re-entry must be sent to the CAA 60 days before expiry of their certificate. Sixty days are required to allow time for all the re-entry assessments to be completed.

The Air Operator Certificate issued under Part 119/135 is finite and cannot be extended. So this is a reminder to track the date your certificate expires, and to apply for re-entry at the appropriate time – 60 days beforehand – to ensure continuity of your business.



Wanaka Reminder

If you are flying to the Warbirds over Wanaka airshow this Easter, it is recommended that you read the article in the January/February 2006 issue of *Vector* for some of the considerations you need to think about. In this article we provide some additional information including **communication coverage** in the area.



Photo courtesy of Ian Berridge

Communication

Because of the mountainous terrain, radio coverage in the Queenstown and Wanaka area depends on the aircraft's position and altitude. In general, radio coverage is good above 4000 feet, but it does vary if you are not **within line of sight of the repeater stations**. As a rule of thumb, if you have line of sight with The Remarkables range, contacting Queenstown Information on 128.0 MHz or (outside Queenstown hours of service) Christchurch Information on 122.2 MHz should be possible. If you are in a valley at lower altitudes, you will lose contact with Queenstown or Christchurch — for example, when descending through 4000 feet into Wanaka. During the period when Wanaka will be a **controlled aerodrome** (refer to the *AIP Supplement*), Wanaka Tower (123.0 MHz) can have difficulty hearing radio calls from aircraft in the vicinity of Lake Dunstan due to the Pisa Range.

If you are approaching Wanaka from the West Coast through Haast Pass, radio contact should be possible with Queenstown or Christchurch Information approaching Makarora above 4000 feet.

If you are arriving from the Southland area, the radio coverage for Queenstown Information is good down to 3000 feet in the vicinity of Lumsden and Mossburn, but as you approach Five Rivers you will need to be above 4500 feet to establish radio contact. If you are flying out of Te Anau, Queenstown Information can be contacted, climbing through 3500 feet.

If you intend to fly down the East Coast and track inland towards Wanaka, radio coverage with Queenstown Information is good above the ranges around Lindis Pass. In the vicinity of Alexandra, contact

with Queenstown Information is possible above circuit height. Over the Cromwell township, Queenstown Information can be contacted above 3000 feet.

If you are flying to Queenstown, there is good radio coverage (even at lower altitudes) with Queenstown Tower (118.1 MHz) in the vicinity of the control zone (CTR/D). At times, however, it may not be possible to contact Queenstown Tower at lower altitudes in the vicinity of Rat Point.

It is important to consider the radio coverage as it will determine when you can make your radio calls to Information for amendments to your SARTIME or other changes to your flight plan (for example, changes in the planned route). If you are unable to get through to Information via RTF, a phone call to the National Briefing Office will be required once you are safely on the ground.

To anticipate whether radio contact can be established with Queenstown Information or Wanaka Tower, you need to have line of sight with the repeater. Remember the Queenstown and Christchurch Information repeaters are located at 7500 feet on the Remarkables and if you are behind a mountain range that is blocking your sight of the tops of the Remarkables, radio contact will be unlikely. The repeater for Wanaka Tower is on the aerodrome, therefore, if you can see Wanaka aerodrome then radio contact should be possible.

For more information on the South Island FISCOP frequencies refer to the *AIP New Zealand Table GEN 3.4-3*.

If you do unfortunately find yourself in some difficulty, don't be afraid to ask for help. Call Christchurch Information or the National Briefing Office. Extra staff will be on hand to assist during this period.

Planning

The following checklist may be useful in planning your flight:

- **Aircraft.** Sufficient hours and time on the aircraft's tech log. The condition of emergency equipment. Extra oil and correct fuel cards for the area. Refer to the January/February 2006 issue of *Vector* for more information on fuel cards.
- **Pilot.** Current on the aircraft type including operation at MAUW, for example, in the poor visibility configuration. It may be advisable to go over some mountain flying techniques with your instructor. IMSAFE.
- **Navigation.** Familiar with the airspace and **terrain** around Wanaka and Queenstown, plus the additional *AIP Supplements 37/06* and *38/06*. Ensure you have up-to-date VNCs and the applicable aerodrome charts.
- **Weather.** Before your flight make a careful study of the forecast weather conditions. To assist, refer to the following web sites, **MetFlight GA**, <http://metflight.metra.co.nz> or **IFIS**, www.ifis.airways.co.nz. Don't forget to check the NOTAMs.
- **Contingency plan.** In the event the weather is unsuitable at Wanaka or Queenstown, there are other aerodromes in the vicinity, the closest being Cromwell, Alexandra, Omarama, and Haast. It is also a good idea to build in weather contingency days, to avoid the insidious danger of time pressure.

Summary

Careful preparation will go a long way to ensuring your flight to Warbirds Over Wanaka is safe and enjoyable. Enjoy your flight and the airshow. ■

Part 61 Re-issue

Part 61 details the requirements for issuing pilot licences and ratings, and the privileges and limitations of licences and ratings. A major project to review Part 61 has been under way for some time, and is in three separate stages.

Stage one is almost complete, so we are providing a summary of the main changes. This is just a summary – you should make yourself familiar with the actual rules.

This is especially important for instructors.

Because there are many changes, all the amendments will be consolidated into a 're-issue' of Part 61. The effective date is expected to be in May 2006, but this will depend on when it is signed by the Minister.

There are consequential amendments to Parts 1, 19, 104, 121, 125, and 135 as a result of the re-issue of Part 61. Draft Advisory Circulars relating to the re-issue of Part

61 will be published on the CAA web site before the effective date to assist in your understanding and implementation of the new rule provisions.

You can see the Draft Final Rule on the CAA web site, www.caa.govt.nz, under "Rules & more – Pending and Draft Rules". You can also see the scope statements for Part 61 Stage Two and Stage Three under "Rules & more – Rule Project Scope Statements".

Changes to Part 61

Part 61 *Pilot Licences and Ratings* will be reissued soon, including general rule rewording for clarity and new rule requirements. The major changes include:

61.5 Requirement for pilot licence and ratings

Pilot licence and rating provisions are clarified to ensure that the appropriate requirements are correctly covered, including validation of a foreign licence.

To operate a New Zealand registered aircraft in New Zealand, the ability to use an Australian current pilot licence is removed, and the only remaining ability to operate an aircraft on an Australian pilot licence is in accordance with the Trans Tasman Mutual Recognition Act (TTMRA). That Act only covers Commercial Pilot Licences and Airline Transport Pilot Licences. Australian Private Pilot Licence holders must hold a New Zealand Private Pilot Licence, or a New Zealand Validation Permit issued under rule 61.9 *Validation permit for a foreign pilot licence*.

To operate a foreign aircraft in New Zealand, the pilot must hold a licence issued by the authority of the country of aircraft registry – a Part 61 New Zealand pilot licence, or an Australian pilot licence covered by the TTMRA, can be used if it is acceptable to the authority of the country of aircraft registry.

The requirements for agricultural ratings and pilot chemical ratings are removed as these are detailed in Part 137 *Agricultural Aircraft Operations*.

The exclusion in relation to pilot licences for balloon, glider, hang glider,

microlight, paraglider, and powered glider pilots is amended to relate to the requirements of Part 103 *Microlight Aircraft – Certification and Operating Rules*, Part 104 *Gliders – Operating Rules*, and Part 106 *Hang Gliders – Operating Rules*.

An exclusion is provided for a Category A flight instructor from the requirement to hold an aircraft type rating on aircraft of a similar configuration.

61.9 Validation permit for a foreign pilot licence

The eligibility for, and expiry of, a Validation permit for a foreign pilot licence is now provided for.

61.17 Written examinations – prerequisites and grades

Written examination requirements for the private pilot licence (PPL), commercial pilot licence (CPL), airline transport pilot licence (ATPL), and instrument rating (IR) are amended. There is a qualifying period for a student to complete **all the written examinations** for a specific licence to attain a '**written examination credit**'. The examination credit is valid for a defined period.

The written examination credit qualifying period is two years for a PPL, three years for a CPL, ATPL, and IR. The written examination credit is valid three years for a PPL, CPL, and IR; ten years for an ATPL (except that the examination pass in ATPL Aviation Law must not be more than five years old).

A person who fails a written examination three times within a period of three months may not sit another examination in that subject for a period of three

months following the date of the last failed examination.

A person who had examination passes for a particular pilot licence or instrument rating before the effective date of the reissued Part 61 in 2006, may use those examination passes towards meeting the requirements for a written examination credit. Rule 61.17 specifies a transition period for such persons as follows:

- the equivalent effective date in 2008 for a PPL
- the equivalent effective date in 2009 for a CPL, or an IR
- the equivalent effective date in 2011 for an ATPL.

61.21 Flight tests

A written examination credit is now one of the prescribed requirements to sit a flight test.

Applicants must also produce a knowledge deficiency report for each written examination, with evidence of knowledge improvement, certified by a Category A or B flight instructor.

The new rule also clearly provides that a flight test is valid for a period of three months, therefore an applicant must apply for the licence issue within three months of passing the flight test.

Anyone who passed a flight test before the Part 61 effective date in 2006 is given a transition entitlement that means the test is valid until the equivalent effective date in 2008.

61.29 Pilot logbooks – general requirements

Logbook information requirements are

more clearly defined to show what needs to be recorded. New provisions have been introduced to recognise computer-generated flight records.

The record of each flight test, flight review, competency demonstration, and flight crew competency check, must include the expiry date. This is to assist in the easy identification of pilot currency.

61.31 Pilot logbooks – crediting flight time

Flight instructors may log instrument flight time only when instructing in actual instrument meteorological flight conditions.

A pilot may not simultaneously credit instrument time, cross-country time, or night flight time for the purposes of meeting the experience requirement for the issue of a licence or rating.

61.37 Recent flight experience

The recent flight experience requirement is fulfilled by a pilot who has completed a pilot licence issue flight test.

A pilot licence holder who has not met the BFR requirements for five years or more must pass the appropriate air law examination, in addition to meeting the applicable licence currency provisions, before exercising licence privileges. An ATPL holder must complete the appropriate Part 119 operational competency checks.

61.39 Biennial flight review

The biennial flight review requirements have been updated and clarified. Exclusions are provided for pilots who meet other currency requirements, including flight instructors, glider pilots, agricultural pilots, and airline pilots.

There is a CAA flight review form that is required to be completed by the reviewing instructor, with copies submitted to the CAA and given to the pilot.

Subpart B – Aircraft type ratings

The eligibility requirements for an aircraft type rating are clarified, and the required flight demonstration to a flight instructor is now called a

“type competency demonstration”.

The provision for an aircraft type rating to apply to a similar but different aircraft type, or variant, is changed to allow a flight instructor to make this determination.

A copy of the type rating training record must be submitted to the CAA.

Subpart C – Student Pilots, rule 61.105 Solo flight requirements

A student pilot must hold a valid written examination credit for a PPL to conduct a solo cross-country flight.

Subpart D – Private Pilot Licences, rule 61.153 Eligibility requirements (Glider)

A PPL (Glider) is introduced.

Subpart E – Commercial Pilot Licences, Helicopter night visual flight rules (VFR) requirement

(61.207 Currency requirements, and 61.257 Currency requirements)

The currency requirements for helicopter night VFR for both private and commercial pilot licences are changing to be the same as for aeroplanes, removing the need for an instrument flight recency requirement.

Subpart E – Commercial Pilot Licences, rule 61.205 Privileges and limitations

CPL holders are able to act as pilot-in-command of multi-pilot aircraft on other than air transport operations. For example, a multi-pilot helicopter being used on logging operations.

Subpart G – Flight instructor ratings

To be eligible for a Flight Instructor Rating, the person must hold at least a CPL.

The Category E and Category D flight instructor privilege to conduct biennial flight reviews is removed.

Subpart M – Glider Tow Rating, rule 61.601 Eligibility requirements

The eligibility requirement for a glider tow rating is amended to require the pilot

to have 100 hours pilot-in-command in an aeroplane.

Subpart Q – Instrument Ratings

Privileges and limitation requirements relating to autopilot and non-autopilot aircraft are deleted.

The instrument rating currency requirements have been amended. The requirement for six hours in the last three months is reduced to three hours, but it requires three published instrument approaches to be completed.

The provision for instrument rating currency requirements for a pilot operating in a Part 119/121 or 119/125 organisation is reworded. When a pilot is carrying out operations under the authority of a Part 119 certificate holder, the pilot must meet the IFR competency requirements under Part 121 or Part 125 as appropriate.

Grace periods

Grace period provisions are amended from one month either side of the due date to 60 days prior to the due date.

Changes to other Parts

Part 19 Transition Rules

19.405 *Test pilots* requirements are amended to detail gliders and micro-lights separately.

19.407 *First of type authorisation* is moved to Part 61 as rule 61.57.

Parts 121, 125, and 135 Air Operations

The logbook entry requirements under Parts 121, 125, and 135 reflect the new logbook requirements introduced under the re-issue of Part 61 to include the expiry date of each competency demonstration. Crew member grace period provisions are amended to allow the use of either one month either side of the due date, or 60 days prior to due date. ■

IA Courses for 2006

An IA (Inspection Authorisation) Certificate is a requirement to perform and certify an Annual Review of Airworthiness (ARA), and Conformity of Major Modifications and Repairs.

Initial Issue Course

The CAA is looking to run an Initial Issue IA Course later this year, and would like to know how many engineers are interested in attending.

Renewal Course

This course is for IA holders whose certificate will require re-issue within the next 12 to 18 months.

Engineers that are performing "Maintenance Reviews" may also find this course useful.

We will run both courses in the major centres if there are sufficient numbers. Otherwise, courses will be held in Wellington.

If you are interesting in attending either course, or require further information, see the CAA web site, www.caa.govt.nz, under "Maintenance Engineers", or contact:

Mark Price
AME Examiner
Tel: 0-4-560 9619
Fax: 0-4-569 2024
Email: pricem@caa.govt.nz

Aviation Risk Management Courses

Aerosafe Risk Management is offering a two-day course in Risk Management for aviation personnel. This course has been tailored to meet the needs of the New Zealand aviation industry and leads participants through the practical application of risk management within the aviation environment.

2006 Course Schedule

18-19 May Carlton Hotel Auckland
17-18 August Carlton Hotel Auckland
16-17 November Carlton Hotel Auckland

The cost for registration is \$650 per person. A 20 percent discount is offered when four or more people from the same organisation register on the same course. For further details please contact their Training Department on +61-2-8336 3700, or email training@aerosafe.com.au.



**TOURIST FLIGHT OPERATORS
NEW ZEALAND**

Dedicated to Safety and Quality

National Conference

Nelson – 6 to 7 July 2006

Tourist Flight Operators New Zealand's 2006 conference is in Nelson, and they invite you to attend and contribute your enthusiasm and knowledge.

Over the two days, a range of speakers, workshops, and onsite visits will explore issues specific to tourist flying – another step towards maximising the safety and quality of the industry.

Chairman, Mark Young, says the conference in Nelson will be another important step for the group and it is vital that operators attend, "Our goal is to maximise safety and quality but to achieve this we need all operators to contribute – the success of Tourist Flight Operators New Zealand hinges on involvement and unity."

Nelson 2006 promises to be another important step toward building a united tourist flying industry. For seminar details, and registration forms, please contact one of the following:

Mark Young	(Volcanic Air Safaris)	0-7-348 9984
Jeanette Lusty	(Nelson Helicopters)	0-3-547 1177
James McKinstry	(Helipro)	0-4-472 1550
Andy Woods	(Wanaka Flightseeing)	0-3-443 8787
Alex Miller	(Mount Cook Skiplanes)	0-3-752 0714
Toby Clark	(Clark & Jolly Helicopters)	0-7-377 8805
Russell Baker	(Air Fiordland)	0-3-249 7505
John MacPhail	(Wings Over Whales)	0-3-319 6580

or your local CAA Field Safety Adviser (see *Vector* for contact details).

How to get Rules, Charts, AIP, etc

0800 GET RULES (0800 438 785) – Civil Aviation Rules, Advisory Circulars, Airworthiness Directives, CAA Logbooks and similar forms, Flight Instructor's Guide.

CAA web site, www.caa.govt.nz – Civil Aviation Rules, Advisory Circulars, Airworthiness Directives, CAA application forms, CAA reporting forms. (Note that publications and forms on the web site are free of charge.)

Aeronautical Information Management (AIM), 0800 500 045
– *AIP New Zealand* Volumes 1 to 4 and all aeronautical charts.

AIP Online, www.aip.net.nz – *AIP New Zealand* is available free on the Internet.

Robinson Safety Courses

After the success of the two insurance-approved Robinson Safety Courses held last year, three more courses will be run in 2006. The first course will be held in Christchurch, 6 to 7 May 2006. The cost of the course is \$490. Course instructor Rob Rich will also be running a one-day turbine course on 5 May 2006, and a two-day Crew Resource Management (CRM) course, 8 to 9 May 2006.

For further information please contact Anne Robertson,
Tel: 0-9-426 8748,
Email: anne@helitraining.co.nz



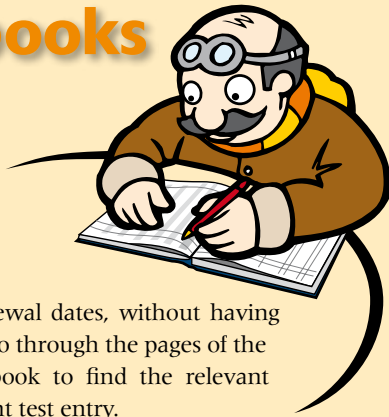
New Pilot Logbooks

The new pilot logbooks are available from your training organisation, or they can be purchased by telephoning 0800 GET RULES (0800 438 785).

When you purchase your logbook, you will notice some significant changes from the previous version. In the opening pages, the section *Student pilot training record* has changed to allow more details for aeroplane and helicopter. The training records for each exercise are to be initialled by an A-Category or B-Category instructor. A C-Category instructor may have (where appropriate) done some of the training, and they can initial each exercise when the required proficiency is achieved, but this must be countersigned by the supervising A or B-Category instructor.

The *Licences and associated ratings* is a summary page for when a pilot obtains a private pilot licence (PPL), commercial pilot licence (CPL), instrument rating, etc.

The *Details of flight tests, checks, reviews, assessments, and authorisations* section is a summary of the details and dates of when specific renewal flights required to maintain currency of the licences or ratings were conducted, for example, biennial flight review (BFR), IFR renewals. It is a summary of the information recorded in the logbook entry pages. It provides a quick reference for pilots and flight examiners as a reminder for important



renewal dates, without having to go through the pages of the logbook to find the relevant flight test entry.

The *Aircraft type ratings* section is to be used as before, but there is now more guidance as to the detail required.

The *Summary of previous logbook* is a CV-type optional use section as the pilot prefers. This section is designed to provide a summary of experience from a previous logbook. *Summary of Experiences* section at the back of the logbook can record information to be carried forward to the next logbook. This section is also optional. It may be used to assist in providing CV-type information, or providing information on flight experience in unique aircraft types.

At the rear of the logbook is a *Notes* section where additional information can be written.

The middle section of the logbook is essentially the same as previous logbooks but with improved layout. For example, there is an extra blank column (Column 17), which can be used for recording significant experience such as instructor time, glider time, etc.

Field Safety Advisers

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Fax: 0-3-322 6379
Mobile: 027-285 2022
Email: jelleyb@caa.govt.nz

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".

Aviation Safety Concerns

A monitored toll-free telephone system during normal office hours.

A voicemail message service outside office hours.

0508 4 SAFETY
(0508 472 338)

For all aviation-related safety concerns

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 now available on CAA's web site www.caa.govt.nz. 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-SHG, Piper PA-18-150, 2 Jul 03 at 15:30, Tauranga Ad. 1 POB, injuries 1 fatal, aircraft destroyed. Nature of flight, towing. Pilot CAA licence CPL (Aeroplane), age 39 yrs, flying hours 431 total, 28 on type, 20 in last 90 days.

Immediately after takeoff on a glider tow, the aeroplane climbed abruptly to a steep nose-up attitude, yawed to the left, and dived into the ground. The pilot was killed and the aircraft destroyed. A full accident report is available on the CAA web site.

Main sources of information: CAA field investigation.

[CAA Occurrence Ref 03/1902](#)

ZK-MJD, Cessna T188C, 6 Sep 03 at 15:15, Wanganui. 1 POB, injuries 1 fatal, aircraft destroyed. Nature of flight, private other. Pilot CAA licence CPL (Aeroplane), age 45 yrs, flying hours 1508 total, 60 on type, 6 in last 90 days.

The aeroplane was on a local flight, originally intended to be three circuits. After flying round the local area at low altitude and speed, the pilot lost control during or shortly after a right turn. The aeroplane 'flicked' into a spin and collided with the tops of a line of pine trees before crashing on to Highway 3. The aircraft was destroyed by impact and fire, and the pilot was killed. A full accident report is available on the CAA web site.

Main sources of information: CAA field investigation.

[CAA Occurrence Ref 03/2557](#)

ZK-CIH, Piper PA-28-140, 4 May 04 at 07:40, Rakaia Gorge. 1 POB, injuries 1 minor, damage substantial. Nature of flight, private other. Pilot CAA licence PPL (Aeroplane), age 57 yrs, flying hours 1149 total, 39 on type, 11 in last 90 days.

The aircraft skidded on landing and collided with a fertiliser bin at the end of the strip.

The right wing sustained substantial damage, all three undercarriage legs were ripped off and the engine cowling was damaged.

Main sources of information: Accident details submitted by pilot.

[CAA Occurrence Ref 04/1478](#)

ZK-HQC, Robinson R44 II, 31 Jul 04 at 14:55, Lower Hutt. 1 POB, injuries nil, damage substantial. Nature of flight, agricultural. Pilot CAA licence CPL (Helicopter), age 55 yrs, flying hours 1246 total, 124 on type, 35 in last 90 days.

The helicopter was spraying downhill on sloping ground near a residential property, when the tail rotor struck some cut gorse bushes, damaging the tail rotor blades. This resulted in the pilot losing control and making a forced landing. The pilot was uninjured, but the main rotor, tail rotor, tail boom, and skids were damaged.

Main sources of information: CAA field investigation.

[CAA Occurrence Ref 04/2396](#)

ZK-EJG, Cessna U206G, 22 Sep 04 at 09:45, Coromandel. 2 POB, injuries nil, damage substantial. Nature of flight, training dual. Pilot CAA licence CPL (Aeroplane), age 29 yrs, flying hours 1286 total, 298 on type, 21 in last 90 days.

The chief pilot was completing route and aerodrome training with a new pilot recently employed by the company, there were no passengers on board the aircraft.

Runway 30 was being used with 15 knots of crosswind gusting to 20 knots. The chief pilot estimated the total wind speed as 20 to 25 knots gusting to 30 knots.

The aircraft was lined up full length on runway 30 and full power applied. The aircraft accelerated normally, immediately

after lift off at approximately 5 feet agl, a substantial crosswind gust from the left weathercocked the aircraft and dumped it back on the ground. At this stage, the aircraft was heading for the airfield boundary fence and perimeter drainage ditch. The pilot applied full aft elevator to clear the ditch and fence. The aircraft became airborne again but the righthand undercarriage hit the fence and the propeller picked up the fence wire.

The decision was made to land the aircraft in the adjacent paddock.

Main sources of information: Accident details submitted by pilot.

[CAA Occurrence Ref 04/3039](#)

ZK-KER, Tecnam P96 Golf, 24 Oct 04 at 14:42, Tanners Airstrip. 2 POB, injuries nil, damage minor. Nature of flight, training dual. Pilot CAA licence PPL (Aeroplane), age 62 yrs, flying hours 9000 total, 350 on type, 8 in last 90 days.

The dual training exercise was short field landings.

At the airstrip there was a 12 knot crosswind with windshear being experienced. Three circuits were successfully completed.

On the next approach, windshear was experienced crossing the threshold. Although full power was applied to arrest the rate of descent, the aircraft landed heavily causing the nose gear to collapse causing damage to the propeller, engine mount, and undercarriage.

Main sources of information: Accident details submitted by pilot.

[CAA Occurrence Ref 04/3399](#)

ZK-MVS, Tecnam P2002 Sierra, 28 Oct 04 at 14:05, Wanaka. 2 POB, injuries nil, damage substantial. Nature of flight, training dual. Pilot CAA licence CPL (Aeroplane), age 31 yrs, flying hours 1100 total, 78 on type, 41 in last 90 days.

During a type rating with a student (CPL holder) a forced landing without power simulation was being practised. At about 20 feet above the ground, the airspeed decreased and the aircraft stalled dropping the right wing which struck the ground. The propeller and nose landing gear were also damaged.

Main sources of information: Accident details submitted by pilot.

[CAA Occurrence Ref 04/3418](#)

ZK-GXZ, PZL-Swidnik PW-5 "Smyk", 9 Nov 04 at 12:30, Drury Airfield. 1 POB, injuries nil, aircraft destroyed. Nature of flight, training solo. Pilot CAA licence nil, flying hours 26 total, 0 on type, 4 in last 90 days.

The pilot was on his second solo flight in the glider and was being winch launched, when shortly after becoming airborne the glider veered to the right of the runway centreline at a very high nose up attitude. Shortly thereafter, the towline back released and the glider immediately entered a spin to the right which was not recovered in the height available. The aircraft struck the ground a short distance from the airfield and the pilot received serious injuries.

Main sources of information: Accident details submitted by Rescue Coordination Centre.

[CAA Occurrence Ref 04/3506](#)

ZK-HZF, Schweizer 269C, 22 Nov 04 at 06:30, Taihape. 2 POB, injuries nil, damage unknown. Nature of flight, ferry/positioning. Pilot CAA licence CPL (Helicopter), age 30 yrs, flying hours 880 total, 649 on type, 79 in last 90 days.

The pilot was positioning the helicopter at a dam site for a spraying sortie when a light tailwind gust resulted in a loss in rotor RPM, forcing the pilot to land in a swamp area. As the pilot was landing the helicopter, the tail rotor struck the dam wall.

Main sources of information: Accident details submitted by pilot.

[CAA Occurrence Ref 04/3939](#)

ZK-RRR, Boeing-Stearman A75N1, 31 Dec 04 at 10:15, Bridge Pa. 1 POB, injuries nil, damage substantial. Nature of flight, private other. Pilot CAA licence PPL (Aeroplane), age 54 yrs, flying hours 400 total, 12 on type, 12 in last 90 days.

The pilot had completed approximately ten circuits. During the landing roll of the final circuit, the aircraft began to veer left. The pilot believed he used insufficient rudder to keep the aircraft straight and a ground loop began. He increased power but the aircraft then collided with the aerodrome perimeter fence and ended up in the adjacent vineyard.

Main sources of information: Accident details submitted by pilot plus further enquiries by CAA.

[CAA Occurrence Ref 04/4102](#)

ZK-FLO, Cessna A152, 11 Feb 05 at 15:30, Moutere Highway. 1 POB, injuries nil, damage substantial. Nature of flight, private other. Pilot CAA licence CPL (Aeroplane), age 24 yrs, flying hours 252 total, 204 on type, 27 in last 90 days.

The pilot pressed on into deteriorating weather and became disoriented at about the same time as the engine began to run roughly. The pilot was unable to reacquire an accurate position, and the engine eventually failed, probably because of carburettor icing. The pilot carried out a forced landing into a paddock, causing damage to the aircraft.

Main sources of information: Accident details submitted by Rescue Coordination Centre.

[CAA Occurrence Ref 05/320](#)

ZK-LYC, Piper PA-28-235, 16 Apr 05 at 12:00, Minaret Station. 4 POB, injuries nil, damage minor. Nature of flight, private other. Pilot CAA licence PPL (Aeroplane), age 69 yrs, flying hours 493 total, 167 on type, 215 in last 90 days.

The pilot was making an approach to the airstrip in gusty conditions when the aircraft encountered strong sinking air currents during the flare. This caused a heavy landing and the nose gear collapsed. The pilot stated that flying at a normal approach speed was probably too slow for the conditions as unexpected gusty conditions had arisen after departure.

Main sources of information: Accident details submitted by pilot.

[CAA Occurrence Ref 05/1277](#)

ZK-RJI, Zlin Z-37T, 29 Apr 05 at 15:55, Pukekohe. 1 POB, injuries, 1 serious, damage substantial. Nature of flight, ferry flight. Pilot CAA licence CPL (Aeroplane), age 35 yrs, flying hours 5200 total, 3 on type, 132 in last 90 days.

The pilot was ferrying the aircraft from Hamilton to Whangarei but diverted to Pukekohe East to refuel. On the approach the aircraft became low and the pilot's application of power was too late to avoid a collision with a bank at the end of the runway.

Main sources of information: Accident details submitted by pilot.

[CAA Occurrence Ref 05/1369](#)

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, www.caa.govt.nz. 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	TIS = time in service
NDT = non-destructive testing	TSI = time since installation
P/N = part number	TSO = time since overhaul
SB = Service Bulletin	TTIS = total time in service

Aerospatiale AS 350BA

Anti-collision light

When the helicopter landed at a remote location, the factory supplied anti-collision beacon was found to be hanging down the side of the tail fin, attached only by the electrical wire. The wires were cut so that the helicopter could be flown back to base. Investigation revealed that the mounting clamp had the incorrect nut fitted, which meant that the clamp was ineffective. The movement of the light lens had then fretted through the clamp over time, until the clamp ultimately failed. The loss of the heavy light lens could have been more significant had it fallen into the tail rotor disk. TTIS 1903 hours.

ATA 2400

CAA Occurrence Ref 05/2964

Aerospatiale AS 355F1

Rolls Royce compressor module rear diffuser seal

The compressor locked up, and the engine would not start. The rear diffuser seal was found to be on low limit. The impeller labyrinth had interfered, and this caused the compressor lockup. The overhaul agency's procedures were amended to ensure maximum clearances are incorporated. TSO 0.5 hours, TTIS 2 cycles.

ATA 7230

CAA Occurrence Ref 05/1878

Britten-Norman BN2A-26

Right brake

During the approach, no brake pressure was evident in the right pedal. The landing was continued, but during rollout the aircraft slewed to the right, stopping clear of the runway and through 90 degrees of turn. Engineering inspection found the right brake hose had failed, and, as a result of the aircraft slewing, the right landing gear plate had failed.

ATA 3242

CAA Occurrence Ref 05/774

Cessna 150H

Exhaust valve

During the cruise at 6500 feet, the engine started running rough. A small explosion and loss of power was experienced. The pilot broadcasted a distress call and made a successful forced landing. An engineering inspection determined that the number 1 exhaust valve had failed, causing significant engine damage. TSO 735 hours, TTIS 735 hours.

ATA 8530

CAA Occurrence Ref 05/2127

Cessna 185A

Cable mounting bracket

The throttle/mixture control bracket was found to have broken into two pieces. The engineers reported that the fracture probably initiated from a distorted stud attachment hole, at and adjacent to the area worn by the washer under the securing nut. A new bracket was fitted. TTIS 429.5 hours.

ATA 7610

CAA Occurrence Ref 05/1104

Cessna A185F

Vertical stabiliser

During a routine inspection, the fin spar was found to be cracked in the area close to the elevator torque tube. This possibly occurred due to a weakening of the area from the removal of material (as described by the manufacturer) to accommodate the torque tube. The fin was replaced and the original fin will be repaired. This is the third similar occurrence within two years. The manufacturer recommends performing a thorough visual inspection of this area during scheduled maintenance. TTIS 5673.2 hours.

ATA 5530

CAA Occurrence Ref 05/1208

Cessna U206G

Pistons, cylinder and conrods

It was reported that the aircraft was flown with approximately 30 percent of Jet A-1 fuel in the tanks. The engine was removed for bulk strip investigation. This showed that the engine had experienced serious detonation, particularly on the number 4 cylinder. The piston rings were damaged, and conrod big ends were distorted. The engine was rebuilt and tested with new number 4 cylinder and pistons, rings, bearings, conrods and conrod bolts.

ATA 8500

CAA Occurrence Ref 05/2638

Diamond DA20-C1

Latch frame

The aircraft lost lefthand braking during taxiing. An engineering inspection found that the lefthand brake master cylinder lower mount had fractured from the latch frame. A weld repair was carried out. The defect was attributed to heavy braking on a training aircraft. The maintenance organisation will now carry out a detailed inspection of this area every 1000 hours. TTIS 3062 hours.

ATA 3242

CAA Occurrence Ref 05/2519

Diamond DA20-C1

Continental IO-240-B3B valve guide

The aircraft was on a solo training flight when the pilot reported a very rough running engine and elected for an immediate return to base. While en route, power appeared to return to normal and

the aircraft made a safe landing. An engineering investigation revealed the one cylinder had an excessive leak rate. It was found that number 3 valve was tight in the valve guide. As a result of this finding, all the valve guides were reamed in accordance with SB 04-11, the cylinders reassembled, a ground run carried out, and the aircraft returned to service. TTIS 500 hours.

ATA 8530

CAA Occurrence Ref 05/1678

Eurocopter EC 120 B

Input flange plug

The main transmission low oil pressure light illuminated during the pre-flight ground run, and the pilot shut the engine down to investigate. An engineering investigation revealed a substantial loss of main transmission oil. This was caused by the input flange plug, which seals the internal bore of the flange, being displaced rearwards and dropping out of the flange. Eurocopter SB 63-010, which introduces a new part number plug (703A35-0203-30) was implemented. The chief engineer recommended that Eurocopter SB 63-010 be made an AD. Airworthiness Directive DCA/EC120/16 is now effective. TSI 7.3 hours, TTIS 571 hours.

ATA 6320

CAA Occurrence Ref 05/2294

Fletcher FU24-950M

Rear spar attachment fittings

During an inspection, severe wear was found in the lefthand wing rear spar to the fuselage mounting attachment fittings on the Fletcher FU24-950M. The excessive wear was noticed due to the attachment bolt not sitting square in the attachment fittings.

ATA 5710

CAA Occurrence Ref 05/2284

Gardan GY-20 Minicab

Continental O-200A cylinder

The aircraft engine started to misfire and was running on three cylinders, so the pilot diverted to a nearby airfield. An engineering inspection revealed the number 2 cylinder was cracked 300 degrees around the cylinder diameter, halfway up the steel barrel. TSO 29 hours, TTIS 774 hours.

ATA 8530

CAA Occurrence Ref 05/1495

Hughes 369E

Number one bearing

The Allison engine was returned to the overhaul organisation (that had carried out the overhaul 3.5 hours previously) with compressor rotor rub. The rub was caused by a number 1 bearing failure due to reduced lubrication. An engineering investigation revealed the number 1 bearing housing locating pin was incorrectly installed, causing the housing orientation in the front support to be misaligned. This misalignment reduced the oil flow to the number 1 bearing. TSO 3.5 hours.

ATA 7240

CAA Occurrence Ref 05/1553

Impulse Aircraft Impulse 100 TD

Crankshaft

The aircraft was flying locally when, at the end of the landing run, the engine stopped and the pilot was unable to re-start it. The aircraft was towed to the hangar. Engineering investigation revealed the Jabiru engine had a broken crankshaft. The engine manufacturer advised the crankshaft failure is believed to have been a fatigue failure due to resonance at low rpm. TTIS 23.8 hours.

ATA 8520

CAA Occurrence Ref 05/1608

Pacific Aerospace Cresco 08-600

Lower torque link bolts

During a 100-hour inspection, the lower torque link bolt was found to be cracked. Five main landing gear lower torque link bolts were found cracked when a magnetic particle inspection was carried out. The operator replaces these bolts every 100 hours TIS, with bolts that have been crack-checked and found serviceable. This is a known problem, and many bolts have been found cracked under the head.

ATA 3210

CAA Occurrence Ref 05/1340

Piper PA-31-350

Battery voltage regulator

During flight the radio and GPS failed but came back on when the avionics master switch was reset. Later in the flight smoke filled the cabin. The pilot completed the flight with the electrics turned off. The alternator, battery, circuit breaker and voltage regulator were all found to be faulty and were replaced. The probable cause was a simple failure of the righthand alternator field wire during flight. Load was then taken by the lefthand alternator and, because of the failure of the battery through over voltage, it delivered excessive current to the battery. Instead of tripping the contacts of the lefthand alternator circuit breaker, they welded together, filling the cabin with smoke. TTIS 20604 hours.

ATA 7400

CAA Occurrence Ref 05/1235

Piper PA-32-260

Carburettor

The pilot reported that the engine was running very rich and the mixture control needed to be nearly in idle cut off to enable the engine to produce power. A serviceable carburettor was fitted and the defective one sent back to the manufacturer. TSI 27 hours, TSO 80 hours, TTIS 80 hours.

ATA 7200

CAA Occurrence Ref 05/2013

Vulcan Air P 68C

Nosewheel steering

After touchdown on the runway, the aircraft lost nosewheel directional control. The pilot was able to taxi clear of the runway using asymmetric power and braking. An engineering investigation revealed the steering disconnect pivot bolt had seized in the bushes of the disconnect lever on the nose leg. With the disconnect lever seized, the lock pin on the steering control rod stayed retracted, and no rudder inputs were transmitted to the nose leg for nosewheel steering. TSI 50 hours, TTIS 330 hours.

ATA 3220

CAA Occurrence Ref 05/2342

ZSLS SZD-9bis Bocian 1D

Sub frame

The glider was inspected, and it was found that the sub-frame supporting the rear rudder pedal pivot tube had glue failure on the top surface. This allowed the centre-section to pivot backwards, causing the rudder pedal levers to bind on the side of the floor pan. The defective centre-section came out cleanly and was able to be re-glued, together with screws for extra security. The sub-frame is close to where the C of G tow hook used to be fitted. It is thought there was water ingress over the life of the glider, causing the glue to fail. TSO 450 hours, TTIS 2748 hours.

ATA 5100

CAA Occurrence Ref 05/1558



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