May / June 2007

VECTOR

POINTING TO SAFER AVIATION

Airspace Changes

When to Let Go

Taupo Update

New Director of Civil Aviation

VECTOR

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Taupo Update

There have been a number of changes at Taupo since our last *Vector* article. We bring you up to date in an article that every pilot intending to transit the area should consider a 'must read'.

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New Director of Civil Aviation

CAA General Manager Government Relations, Steve Douglas, has been appointed as the next Director of Civil Aviation. He begins his new role 1 June 2007, succeeding interim Director, Russell Kilvington.

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Cover: *On 7 June 2007 airspace changes occur and new charts are effective - see article on page 3. To coincide with the changes, we update the* New Zealand Airspace *poster and GAP booklet - see page 17.*

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

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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Reader comments and contributions are welcome and may be published, but the Editor reserves the right to edit or abridge them, and not to publish those that are judged not to contribute constructively towards safer aviation. Reader contributions and correspondence regarding the content of *Vector* should be addressed to: *Vector* Editor, P O Box 31–441, Lower Hutt 5040, or email: info@caa.govt.nz.

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Vector is distributed automatically to all New Zealand flight crew, air traffic controllers, aircraft maintenance engineer licence holders, aircraft owners, most organisations holding an aviation document, and to certain other persons and organisations interested in promoting safer aviation.

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Readers receiving *Vector* free of charge should notify info@caa.govt.nz of any change of address, quoting your CAA Client Number. Paying subscribers should notify The Colour Guy.

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Vector is available on subscription only from The Colour Guy, P O Box 30–464, Lower Hutt 5040, Freephone 0800–438 785.

Airspace Changes

On 7 June 2007, significant airspace changes occur in the Auckland, Manawatu, and Queenstown areas. Additionally, special procedure areas (SPAs) are renamed as common frequency zones (CFZs), to better reflect the reason for their establishment in the first place. The amended airspace is depicted on the new series of Visual Navigation Charts (VNCs) effective on the same date – note that the entire range has been reissued, not just those relating to the three areas mentioned. A summary of the main airspace changes in decreasing order of magnitude is set out below. See also "New Airspace Products" on page 17.

Manawatu

See also AIP Supplement (SUP) 77/07 *Ohakea Flight Information Service Broadcast*; 78/07 *Manawatu – Ohakea Area VFR procedures*; and 79/07 *Manawatu Airspace Amendments*. The Ohakea and Palmerston North control zones (CTR) have amended boundaries to allow for a new VFR transit lane (T354, Oroua) between the Oroua River and the Ohakea CTR, to facilitate north/south traffic between the Feilding area and southern Manawatu. Traffic in the transit lane should listen out on the Feilding frequency of 124.1. Caution is required to ensure aircraft remain in the transit lane, because of instrument traffic in and out of Palmerston North and Ohakea adjacent to the transit lane.

Several new or redesignated military operating areas (MOAs) appear:

- M302, Taranaki Bight; the old M308 (Tangimoana) is disestablished.
- M306, Raumai; same lateral dimensions as the former M304, but with the upper limit lowered to 7000 feet.
- M310, Ohakea; same dimensions and upper limit as the Ohakea CTR.
- M311, Bulls; 4-NM radius circle centred on OH VORTAC, 1500 to 2500 feet.
- M312, Manawatu Coast; 1500 to 7000 feet.

Requests for clearance to enter or transit any of these MOAs are made to Ohakea Control on 125.1 MHz.

A Flight Information Service Broadcast (FISB) facility has been added at Ohakea, to advise the status of M306, the Raumai air weapons range. A FISB is like an ATIS, but provides information other than weather. If the broadcast advises that the weapons range is not active, pilots may transit through M306, seawards of the coast below 1500 feet, without a clearance from Ohakea Control. The range can be activated at 10 minutes notice, so pilots must vacate M306 within 10 minutes of entering it. If the FISB (on 124.5 MHz) indicates that the range is active, pilots must remain clear. Assistance to do so can be obtained from Ohakea Control.

Both the Feilding general aviation area (GAA) and CFZ have boundary changes.

Special procedure areas (SPAs) are renamed as common frequency zones (CFZs).

A new CFZ, Manawatu, is established to the south of the Palmerston North and Ohakea CTRs towards Levin, from the surface to the lower limit of the controlled airspace above. Note that this height varies with location. The new CFZ frequency is 122.6 MHz, and this is now also the unattended aerodrome frequency for Foxpine Aerodrome. The CFZ is designed to assist pilots with traffic information in a busy training and transit area.

A new danger area, D521, has been established west of Pahiatua to facilitate unmanned aerial vehicle (UAV) activity; vertical limits are surface to 2000 feet. Activation is by NOTAM.

Queenstown

The Queenstown CTR has been expanded to the north, east and south; and the CTA (control area) steps have been lowered in some sectors to accommodate the new RNAV (area navigation) instrument approaches. A new GAA (Kawarau) has been established to the east of the CTR, from the surface to an upper limit of 4500 feet. The Coronet Peak GAA now becomes larger because of the northward expansion of the CTR.

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Two new visual reporting points (VRP), Cardrona Ski Field and Mount Nicholas, have been created since the VNCs went to press, but their details are published in SUP 75/07 and they are depicted in the 7 Jun 07 Queenstown VFR Arrivals/Departures pages in *AIP New Zealand, Vol 4* effective 7 June 2007.

Study the new VNC sheet C10 (1:250 000) in conjunction with SUP 55/07 *Otago – Southland Airspace Amendments* to become familiar with the new airspace, preferably well in advance of the effective date.

Out-of-date charts should be either destroyed or clearly marked … to prevent their use.

A new CFZ has been established in the Wanaka area, between the surface and the CTA lower limits, with a frequency of 120.1 MHz – note that this also becomes the Wanaka unattended aerodrome frequency. The Fiordland CFZ has been expanded eastward to adjoin the Wanaka CFZ. The R701 (Homer Tunnel) upper limit is raised from 8000 to 8500 feet.

Since the VNCs went to press, a change has been made to the western boundary of the Wanaka CFZ and will become effective on 2 August 2007 (notified by SUP). The northwest corner of the CFZ will then be the mouth of Minaret Burn rather than Mount Aspiring Homestead VRP, and the eastern boundary of the Fiordland CFZ will move correspondingly so that the two zones remain adjoining.

Auckland

The main changes in the Auckland area are the removal of the 'notch' in the northern boundary of the Auckland CTR – this was to accommodate Pikes Point traffic before that aerodrome closed – and the expansion of the Auckland City MBZ (mandatory broadcast zone) southward to the Auckland CTR boundary and east to take in Howick and Musick Point.

The former Rodney SPA has been merged with what was the North Shore SPA to create the new North Shore CFZ, with frequency 118.0 MHz.

The Great Barrier MBZ has a northern boundary extension to Kawau Island and the upper limit is raised to 4500 feet. The Hauraki Gulf CFZ southern boundary now coincides with the Auckland CTR and Auckland City MBZ boundaries.

For detail, see VNCs C3 (1:250 000) and D1 (1:125 000), as well as SUP 52/07.

Other

The Whangarei MBZ has been extended north and west, with a minor adjustment to the southern boundary, to accommodate instrument approaches and to include heliports to the north of Whangarei aerodrome.

There are several other minor changes throughout New Zealand, mainly the redesignation of some parachute landing areas (PLAs) and changes to user details. All airspace changes can be studied in detail in the Air Navigation Register (available on the CAA web site), and where applicable, also in the ENR section of *AIP New Zealand, Vol 1*.

Visual Navigation Charts

As stated in the March/April *Vector*, VNCs are being completely reissued, and are effective from 7 June 2007. The main differences are the numbering system and the new 1:125 000 VNCs, designated D1 (Auckland Terminal) and D2 (Christchurch Terminal). Note: These are not called VTCs. Users will also note that certain aerodromes, such as North Shore and Feilding, have a faint purple oval or circle surrounding the aerodrome symbol – this indicates "high density aerodrome traffic" according to the chart legend.

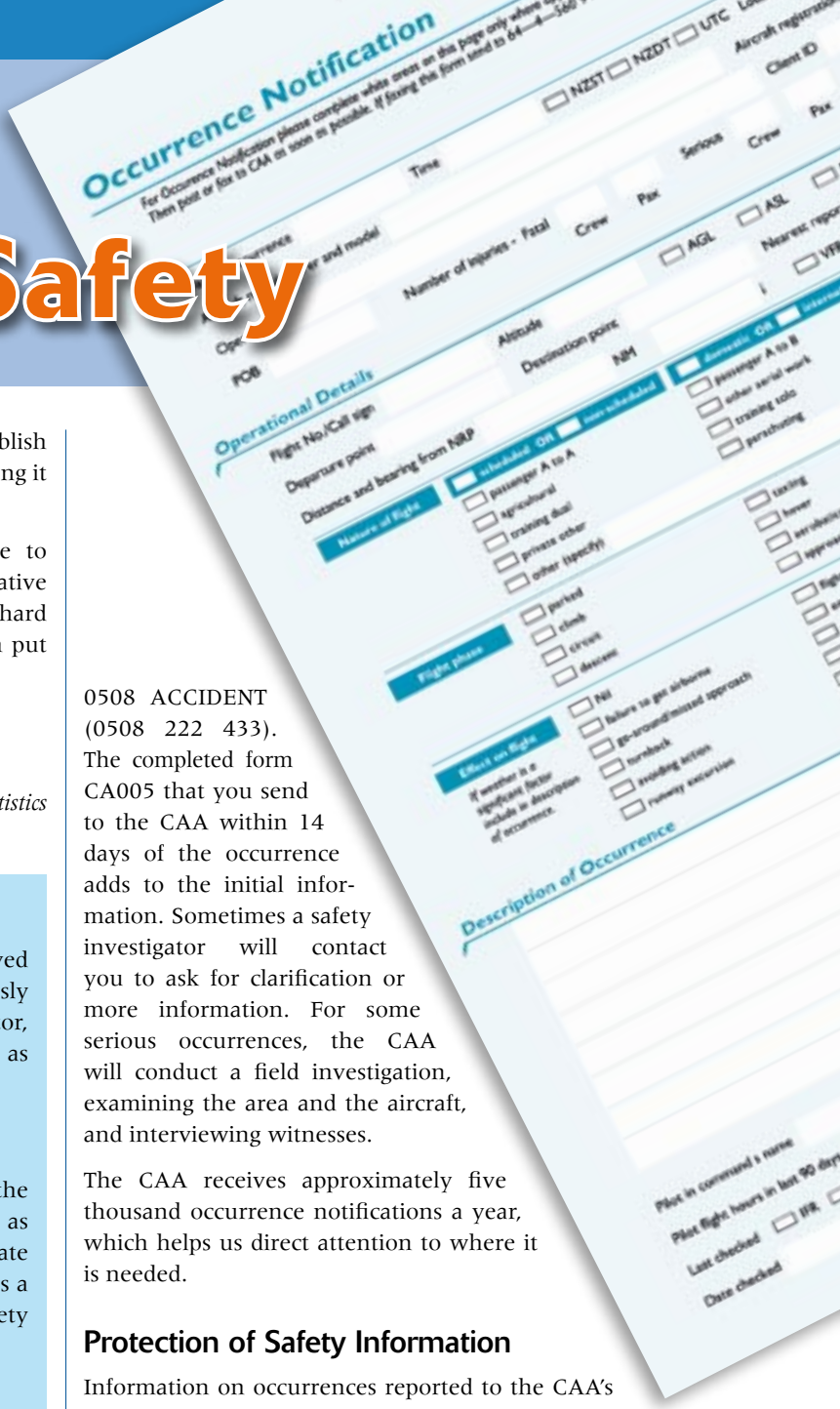
The 1:125 000 scale allows for greater detail and less clutter, and should make both pre-flight planning and in-flight navigation easier in these congested areas. A sample of VNC D1 is shown as a background to the heading of this article.

The VNCs are printed back to back (same scale) such that no two adjacent charts appear on the same sheet. All have an overlap with neighbouring charts to facilitate planning and the transfer from one chart to the next in flight.

We recommend that you obtain the relevant VNCs and study the changes (in conjunction with the appropriate SUP) well in advance of the effective date. Out-of-date charts should be either destroyed or clearly marked, "Not for Operational Use" or something similar, to prevent their use on or after 7 June 2007.

All charts are supplied by Airways New Zealand's 'AIP Shop', and can be ordered online at www.aipshop.co.nz, or by calling their toll-free number 0800 500 045. Note that the CAA does not sell charts or aeronautical publications. ■

Reporting Improves Safety



The sole purpose of a safety investigation is to establish what caused the occurrence with a view to preventing it happening again.

"From the investigation of incidents we may be able to determine the precursors to an accident. By using cumulative data about occurrences, trends can be revealed," says Richard White, Manager Safety Investigation. The CAA can then put steps into place to help prevent accidents.

Occurrence Reporting

Civil Aviation Rules, Part 12 *Accidents, incidents and statistics* defines when you must report an accident or incident.

12.51 Notification of accident

(a) Each pilot-in-command of an aircraft that is involved in an accident or, if that person is fatally or seriously injured, or if the aircraft is missing, the operator, shall notify the Authority of the accident as soon as practicable*.

12.55 Notification of incident

(a) A holder of a certificate issued in accordance with the following Parts must notify the Authority as soon as practicable* of any associated incident if the certificate holder is involved in the incident and the incident is a serious incident or is an immediate hazard to the safety of an aircraft operation:

(1) Parts 119, 129, and 137 – aircraft incident, or dangerous goods incident:

(2) Part 172 – airspace incident:

(3) Parts 171 and 174 – facility malfunction incident:

(4) Parts 19, 47, 119, 129, 137, 145, 146, and 148 – defect incident:

(5) Parts 119, 129, 139, 140, 171, and 172 – security incident:

(6) Part 139 – aerodrome incident:

(7) Parts 139, 171, 174, and 175 – promulgated information incident.

Even though these are the legal requirements, the CAA encourages all aviation participants to submit reports of incidents that are outside these obligations. This helps the CAA to look at the 'big picture' and detect trends. Intervention can then be considered before accidents occur.

When you phone to report an occurrence, the details are noted in the CAA database. You can report easily by calling 0508 ACCIDENT (0508 222 433). The completed form CA005 that you send to the CAA within 14 days of the occurrence adds to the initial information. Sometimes a safety investigator will contact you to ask for clarification or more information. For some serious occurrences, the CAA will conduct a field investigation, examining the area and the aircraft, and interviewing witnesses.

The CAA receives approximately five thousand occurrence notifications a year, which helps us direct attention to where it is needed.

Protection of Safety Information

Information on occurrences reported to the CAA's Safety Investigation Unit may not be used or made available for the purpose of a prosecution investigation, except as detailed below. This protection is in Part 12.

12.63 Non-prosecution

The Authority shall not use or make available for the purpose of prosecution investigation or for prosecution action any information submitted to it by a person under this Part unless—

(1) the information reveals an act or omission that caused unnecessary danger to any other person or to any property; or

(2) false information is submitted; or

(3) the Authority is obliged to release the information pursuant to a statutory requirement or by order of a Court.

The exceptions rarely occur.

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Reporting Studies

Studies into many industries have shown that for every accident there are many minor incidents. Many occurrences are never reported, especially in the general aviation sector. Embarrassment can play a part in this, especially when pilot error might be a contributing factor. To encourage reporting, Part 12 provides for confidentiality (rule 12.61 *Confidentiality of persons submitting information*).

The CA005 can be sent to the Manager Safety Investigation, marked 'confidential'. Once the report has been verified, it is 'de-identified'. This limits the scope of any investigation, and reduces the potential to identify underlying causal factors, but the CAA would rather have limited information than no report at all.

Feedback

Once you have filed your occurrence report, you will receive an acknowledgement by post or email. There may be a field investigation, or you may simply be contacted by phone for clarification or for more information. When the investigation is closed you will be sent a letter informing you of this.

The data gathered is used to improve safety through a number of measures, such as pilot education, Airworthiness Directives, and sometimes a rule change.

We provide feedback on safety investigation and analysis through a number of means. Occurrence Briefs, including Accidents and GA Defects, are published in *Vector* every two months. Accident Briefs, Fatal Accident Reports, and GA Defects are published on the CAA web site. We also publish quarterly and six-monthly Safety Reports that summarise our safety analysis. These are on the CAA web site, see "Safety Information – Safety Reports".

Aviation Related Concerns (ARCs)

The ARC reporting system is intended for anyone wanting to raise aviation related safety or security concerns. However, most ARCs are actually received from pilots and operational staff. The CAA receives approximately five hundred ARCs per year.

All ARCs are administered by the Safety Investigation Unit. They are then forwarded to the manager of the appropriate department where a decision regarding the level of investigation is made. Investigations can take many forms, from a desk-managed investigation to an on-site investigation.

Some ARCs can be investigated quickly, as was highlighted recently when the New Zealand public became obsessed with several icebergs that had drifted north from Antarctica. Charter flights buzzed the ice hour after hour, with some

Definitions

Occurrence – means an accident or incident

Incident – means any occurrence, other than an accident, that is associated with the operation of an aircraft and affects, or could affect, the safety of operation.

Serious Incident – means an incident involving circumstances indicating that an accident nearly occurred.

Accident – means an occurrence that is associated with the operation of an aircraft and takes place between the time any person boards the aircraft with the intention of flight and such time as all such persons have disembarked and the engine or any propellers or rotors come to rest, being an occurrence in which:

(1) a person is fatally or seriously injured as a result of:
  (i) being in the aircraft; or
  (ii) direct contact with any part of the aircraft, including any part that has become detached from the aircraft; or
  (iii) direct exposure to jet blast —
  except when the injuries are self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to passengers and crew; or

(2) the aircraft sustains damage or structural failure that:
  (i) adversely affects the structural strength, performance, or flight characteristics of the aircraft; and
  (ii) would normally require major repair or replacement of the affected component —
  except engine failure or damage that is limited to the engine, its cowlings, or accessories, or damage limited to propellers, wing tips, rotors, antennas, tyres, brakes, fairings, small dents, or puncture holes in the aircraft skin; or

(3) the aircraft is missing or is completely inaccessible.

Type of OCCURRENCE	Initial NOTIFICATION (as soon as practicable)*	Provide DETAILS (within 10 days for accidents or 14 days for incidents)	Submit INVESTIGATION Report (within 90 days)
Accident or serious incident	Pilot in command (or operator) Notify CAA 0508 ACCIDENT 0508 222 433 *rule 12.51 or 12.55*	Pilot in command (or operator) Form CA005 *rule 12.53 or 12.57*	
Serious incident, or Immediate hazard to aircraft operations	Certificate holder or person involved Notify CAA 0508 ACCIDENT 0508 222 433 *rule 12.55(a)*	Certificate holder or person involved Form CA005 or CA005D *rule 12.57*	Certificate holder Form CA005 or CA005D *rule 12.59*
Incidents: Aircraft, Dangerous Goods, Facility malfunction, Defect, Security.		Certificate holder Form CA005 or CA005D *rule 12.57(a)(1)*	Certificate holder Form CA005 or CA005D *rule 12.59*
Airspace incident	Pilot in command *rule 12.55(c)* Certificate holder *rule 12.57(a)(1)* Notify CAA (via ATS)	Pilot in command *rule 12.57(a)(3)* Certificate holder *rule 12.57(a)(1)* Form CA005	Certificate holder Form CA005 *rule 12.59*
Bird incident	Pilot in command Notify CAA (via ATS) *rule 12.55(c)*	Pilot in command Form CA005B *rule 12.57(a)(3)*	
All other incidents		Person involved Form CA005 *rule 12.57(a)(2)*	

*** "as soon as practicable"**
In general terms, this means the first telephone you come to. It does not mean 'when convenient'.

even landing on the icebergs. This raised concerns as to the safety and legality of these operations, as the icebergs were 50 to 70 miles offshore. They were also outside the New Zealand Flight Information Region.

John Fogden, Manager Rotary Wing, made telephone contact with all helicopter operators in the North and South Islands who might have been considering commercial flights to the icebergs. The Aviation Industry Association (AIA) helped by publishing guidance instructions to pilots who intended to conduct these flights. Robert Mills, Flight Operations Inspector, followed up the team work conducted by the CAA and the AIA by visiting various airfields in the Otago and South Canterbury areas. He discussed flight planning, flight following, life jackets, life rafts, floating ELTs, met minima and minimum safe heights with the operators.

Robert concluded that, "most pilots had thought about safety measures, but the majority needed to question themselves on the wisdom of operating in the offshore environment in single-engine aircraft where rescue could be difficult."

ARC reporting led to swift action by the CAA in this instance, potentially saving lives.

ARCs are used in a very similar manner to the CA005 form. One ARC on its own will highlight a concern, but several on similar issues will pin-point a problem. Depending on the problem, it can be addressed through education, retraining, or in an extreme case, prosecution.

If you have an aviation related concern, be as specific as possible with your information. If you are reporting an aircraft, what colour was it? Could you see the registration? Was the aircraft a twin-engine aircraft or single-engine aircraft? If possible take a photo of it. All of this information can be suppled to the CAA anonymously, if desired, but we prefer to have a contact so that we can clarify any points that arise. ■

There are two ways to report an aviation related concern. Call the free phone 0508 4SAFETY (0508 472 338), or email info@caa.govt.nz.

Back to Basics

Technology, Tips and Traps

Technology can be a wonderful tool. Innovations available to pilots today can provide large amounts of information, making flying more efficient and arguably safer. There are some pitfalls, however, if technology is not used appropriately, or if it fails, or distracts pilots from other basic tasks.

The theme of the CAA 2007 series of AvKiwi Safety Seminars is "Back to Basics", with an emphasis on the tips and traps in using new technology.

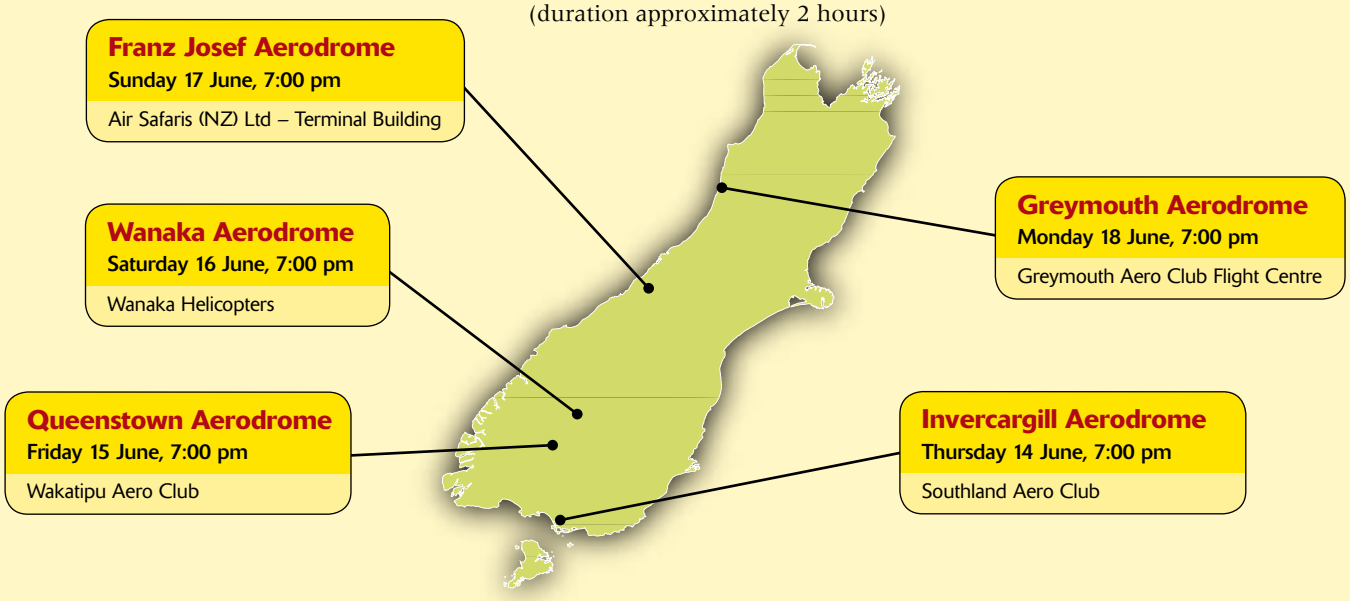
Topics covered will include:

- Lookout
- Route planning
- Communications.

The series of seminars will be presented by Dave Horsburgh, a pilot with more than 20,000 hours flying experience. Dave is an airline A320 captain, A-Cat Instructor, Flight Testing Officer, GA and Airline Examiner, and the Aircraft Owners and Pilots Association (AOPA) Safety Officer.

Seminar Schedule

(duration approximately 2 hours)



A complete list of seminars is on the CAA web site, see "Safety information – Seminars and Courses"

When to Let Go

The rule requirements for sending a student solo are well known by instructors, but there are many other factors to consider, in addition to the rules, before sending a student on their first solo. These are often not put down in black and white, but passed on from CFIs to each new instructor as they begin their teaching career.

Two key ingredients in ensuring the success of your students are communication and trust between you. Instructors need to build a rapport with their students from the beginning of their training, so that the student has absolute confidence in the instructor's decision making. This will help with a student's confidence when flying solo because, if their instructor says they are ready for it, and they trust their instructor's decisions, they will have confidence in their own ability too.

It is best to avoid rushing into the first solo as a goal in itself; aim for a competency standard in your student that will ensure continued progress after the first solo event. Don't build it up as a huge milestone or achievement on its own; it is just one step in the overall process of learning to fly. In the initial briefing before you start circuit training, explain to the student that to begin with you will coach them through everything they need to do while in the circuit, and gradually they will need less and less cueing from you, to the point where they can fly a circuit without you. Leave it at that – don't make a big deal about going solo until after the event.

Here are some key competencies to look for in a student before letting them 'go it alone'.

Situational awareness is important. Can the student disregard irrelevant radio calls and incorporate relevant ones, to build a mental picture of where other traffic is in relation to them?

Once they have a visual and mental picture of where other traffic is, they need the ability to manage their position in the circuit. Can they judge spacing between themselves and other traffic in front or behind them, traffic joining or leaving the circuit, or traffic taking off?

In order to manage spacing, students should be happy with changes to the standard circuit pattern. The confidence to extend down-wind, orbit, and go around is necessary. Knowing how to deal with bounce or ballooning situations on landing is also important. Ballooning could be likely to happen during their first solo landing, as the student will not be used to flying without the extra weight of an instructor on board.

An appreciation of when it is appropriate to carry out a touch and go, rather than a full stop landing, should be instilled in students. Set limits on touch and goes. It is a good idea to nominate two decision points, and link them to visible landmarks. If the student has not touched down by the first point, a full stop landing should be made. If they haven't reached a nominated airspeed by the second point, they must abort the takeoff.

Students need to have a basic understanding of the actions required in an emergency and have, for their limited experience level, a realistic chance of managing the situation in the event of a flap failure, engine failure after takeoff, aborted takeoff, glide approach, brake failure, or smoke in the cabin. How to use the emergency equipment on board should also have been covered.

Being self-sufficient in the start up, run up, pre-takeoff checks, and shutdown phases of flight is a prerequisite. Students also need to have evolved from being dependent on the instructor's cueing, to being independent (at a level relevant to their experience).

In the beginning, avoid drawing attention to the first solo as a significant milestone, and as the event gets closer, don't give the game away that their first solo is imminent. It can be distracting and detrimental to their progress if they are thinking about the possibility of going solo, rather than focusing on the task at hand. Here are some good ways to avoid arousing their suspicion.

If training is being carried out by a C-category instructor, organise a check flight with a B category instructor well in advance of the student going solo, so that the B cat can sample all of the items required to be checked by rule 61.105 (5) (i) to (xiii), such as straight and level, climbing and descending, and turns.

The physical sign-off of these items in the student's logbook, however, is not an essential prerequisite before they go solo. It is best to not sign them all off, as doing so may give the student the perception that their first solo is imminent. Logbook signoff is best done post first solo, but prior to further flight.

Well before their first solo is ever likely, sight and document their medical certificate, and on the day don't give any advance clues that you are going to hop out (verbally or by body language).

In the last flight prior to going solo, ensure the student has achieved at least three consistent or consistently improving circuits, so that when the instructor hops out there is a high chance the student will continue with the same pattern of improvement, independent of cueing. If the circuits are getting worse, stop the session early.

Do not let a student go solo after a prolonged session, as their concentration will lapse. The optimum time to get out is within 30 to 50 minutes.

Weather conditions are also an important consideration; 8 to 12 knots of consistent wind straight down the runway will reduce their ground speed and give them more judgement time. This will make their landing easier than in calm conditions. Don't send them out if it is too windy or traffic is too busy.

Before hopping out give clear and concise instructions to your student. Tell them to do one circuit, taxi in (stipulating exactly where to stop), and shut down. Reiterate that if they are not happy with the approach, they should go around and set up again. They will be surprised and operating on some adrenalin, so don't overload them with instructions. It is best practice to make the first solo only one circuit.

If you are operating at an attended aerodrome, remember to tell the tower your student is on their first solo circuit. If you are at an unattended aerodrome, for safety reasons it is important to watch your student fly the circuit, and if possible listen to them on the radio at the same time.

After the flight supervise their logbook entry, as the student's excitement can lead to an error being made. Explain that they need to use the P in C column. Now that they have achieved their first solo, feel free to make a fuss about this fantastic achievement.

If training continues under a C-category instructor, the B cat still provides oversight. Rule 61.105 (6) requires an A or B cat to authorise solo flights if the student has not had dual instruction within the last 5 hours of flight experience. This is the minimum standard with respect to oversight by a B cat, however more oversight than this is desirable.

Solo Consolidation

While the rule does not spell out minimum requirements for solo circuit consolidation, it is important to respect this element of early training. It is most common for students to complete 3 to 5 hours solo consolidation. Best practice is approximately 5 hours. This reaps rewards further down the training path, as the student is independent and confident enough to follow each advanced dual exercise with solo practice. It also means that when approaching a flight test, the issue of being short on pilot-in-command time is less likely to be a problem.

Solo consolidation programmes will vary depending on conditions and the student's competence. A good base programme to begin solo consolidation would see the first solo circuit followed by a session comprising dual circuits then 2 to 3 solo circuits, dual circuits then 30 to 40 minutes of solo circuits, one dual circuit then 50 minutes of solo circuits, and in the next session the student should complete 1 hour of solo circuits with no dual required at the start. It is advisable to have your students carry out full stop landings on their first couple of solo flights if the aerodrome's situation and traffic allows this. Only let them do touch and goes after a few flights on their own.

Problems that instructors often encounter are overconfidence in a student on their second or third solo flight, and complacency after 3 to 5 hours of solo consolidation. This should be overcome by including emergency drills, such as flapless landings, glide approaches, and engine failures after takeoff, into the dual sessions between solo flights.

It can often be harder for an instructor to judge if a student is ready for their second or third solo flight, compared to the decision to send them on their first solo, particularly if their training has been handed back over to a C-cat. In this case B-cats must actively communicate, supervise, and support C-cats in their decisions.

Summary

To help your students get through their first solo with as little drama and stress as possible, remember to build a rapport with them from the beginning of their training. If they trust your decision making, they will accept that they are ready when you send them solo, and have confidence in themselves because you have confidence in them.

Avoid treating the first solo as a goal in itself, and don't build it up as a huge milestone. It is just one step in the overall process of learning to fly. Explain that, to begin with you will coach them through the circuit, and gradually they will need less and less cueing from you until they can fly a circuit on their own. Don't make a big deal about going solo until after the event.

As it gets closer, don't give the game away. It can be distracting and detrimental to their progress if they are thinking about going solo, rather than focusing on the task at hand.

Follow up their first solo with a well thought out programme of solo consolidation. Challenge them during the dual part of sessions if they are losing interest in the circuit, or getting over confident. A good five hours solo consolidation will reap rewards further down the training path. ■

Taupo Update

Since publication of the article "In, Out and Around Taupo" in the July/August 2006 issue of *Vector*, there have been changes to various aspects of local operations. Some have been promulgated by *AIP Supplement*.

The most important of these is that Taupo UNICOM no longer exists, and Taupo reverts to unattended aerodrome status. Normal mandatory broadcast zone (MBZ) procedures apply, on frequency 118.4 MHz. Although the MBZ is transponder mandatory only above 3000 feet, it is recommended that transponders be ON and set to ALT mode at all times when airborne in the MBZ. Some aircraft operating into and out of Taupo are ACAS-equipped, and can 'see' other transponder-equipped aircraft.

The Centennial Park and Kaimanawa special procedure areas (SPAs) are now known as common frequency zones (CFZs), which is a better description of the airspace function. Pilots operating in these areas should listen out on the designated frequency (134.45 MHz for Centennial Park; 134.0 for Kaimanawa). Unless you are actually intending to land at Centennial Park, it is a good idea to remain outside the CFZ, as there may be considerable glider training traffic, some NORDO, on most days. The Taupo AWIB broadcast will include Centennial Park activity status. Since the last article, there has been an instance of a pilot flying right through the Centennial Park circuit, claiming that he did not know about it or the (then) SPA. The information was always available – good planning is the key.

The Taupo aerodrome chart (*AIP New Zealand* page NZAP AD 2- 51.1/2) has been reissued twice since the publication of the original article, and the latest has additional notes regarding circuit joining procedures as affected by parachuting operations. These are:

- Where practicable, all pilots should avoid using the overhead join procedure at Taupo aerodrome due to the presence of parachuting operations.
- Parachute aeroplanes may operate in a right-hand circuit for RWY 35 and a left-hand circuit for RWY 17 if required (eastern circuit). Other aeroplanes must use the western circuit when within the vicinity of the aerodrome (left base for RWY17/right base for RWY 35 is not permitted). Aeroplanes joining from the east should report at least 5 NM, and position to join final at least 3 NM, from the aerodrome.

There is a Memorandum of Understanding between the various Taupo-based parachuting organisations, Taupo Airport Authority, and Eagle Airways (who provide the scheduled Air New Zealand Link services to and from Taupo). The procedures adopted by Eagle for IFR operations, and strongly recommended for other IFR pilots (of aircraft over 5700 kg) bound for Taupo, are:

- Call Taupo Traffic on 118.4 MHz at 50 DME with an ETA accurate to one minute;

Centennial Park viewed from the north.

- Call again at 25 DME with position and approach intentions;
- Make a 20 DME call if parachuting is in progress, maintaining a continuous listening watch on 118.4 MHz thereafter;
- Limit IAS to no more than 200 knots within 10 NM of Taupo, below 4000 feet AMSL;
- Report commencing visual approach or entering the Taupo MBZ, and again 3 NM from the runway threshold (Note: If intending to make a missed approach or a touch-and-go landing, say so at this point. The drop pilots will normally wait until an inbound aircraft has reported at 3 NM before dropping, on the assumption that that aircraft will be landing);
- If parachutes are still airborne in the vicinity of the aerodrome, widen the circuit to 3 NM for separation;
- Maintain runway heading to 3 NM from the aerodrome then remain outside a 3-NM radius;
- Avoid SIDs that would conflict with parachuting.

These procedures are intended to minimise the risk of collision between an aircraft and a parachutist, or between aircraft. Maintaining a high level of vigilance and a good lookout will reinforce their effectiveness.

If you are unfamiliar with Taupo, plan your flight carefully, studying all available information including relevant parts of *AIP New Zealand*, especially *Supplements* and VNCs. There is also the option of contacting local operators for advice. Even if you fly to Taupo frequently and you think you know it all, check for changes since you last went there.

The article "In Out and Around Taupo" is posted as a stand-alone item on the CAA web site, and will be accompanied by this update. ■

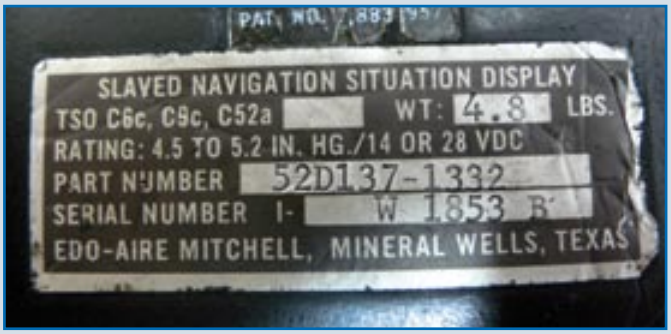
FM Broadcast Interference

Anyone who has an 'auto seek' function on their radio will know that there has been a massive increase in the number of FM broadcast stations in the 88-108 MHz band, especially on frequencies above 105 MHz. This has led to a corresponding increase in the possibility of interference to older ILS localizer receivers and VOR receivers on board aircraft.

In the 1980s, the International Civil Aviation Organisation (ICAO) changed the standards for localizer and VOR receivers in order to improve the immunity to interference from FM broadcast stations. The new standards took effect from 1998, and the localizer and VOR receivers that meet those standards are known as 'ICAO' or '1998' receivers. These ICAO compliant receivers have more sophisticated filters in them that can filter out other frequencies that are very close to the target frequency.

Receivers that do not meet these standards do not provide the same degree of immunity to interference from FM broadcast stations.

Airways New Zealand team leader for navigation systems, Rudi Van der Velden believes, "we need to be cautious with radio stations approaching 108 MHz. This is because there is an increased potential for radio stations with large power outputs to interfere with ILS localizer signals. If this is the case, then false navigation for an aircraft flying an ILS could occur".



Sticker showing TSO numbers on a Horizontal Situation Indicator (HSI).

Due to a lack of data and uncertainty about how many non compliant receivers are in service in New Zealand, it is very difficult to predict if this is going to become a problem.

Jim Willcox from Aviation Radio believes that, "in Europe and the United States this is a significant problem because of the power output of the radio stations, but in New Zealand there is not enough information to make a sound judgement."

If you have an older localizer or VOR receiver, you should check to see which standards they meet. There are several ways in which this can be done. Try checking the TSO number stamped on the front side of the localizer and VOR receivers, which would usually be found in the avionics stack. If this is not easily accessible, then check the aircraft's log books.

The only TSOs that meet the '1998' standards are TSO-C36e for localizer receivers, and TSO-C-40c for VOR receivers.

If this seems all too technical, discuss the '1998' standards with your maintenance provider and have them research the standard your instrumentation meets.

If your aircraft receiver does not meet the '1998' standards, be aware that it may be susceptible to interference from FM broadcast stations. ■

Switch to 406 Now

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

A Bell 407 helicopter crashed in Antarctica in December 2003, in temperatures as low as –40 degrees C. The time it took to reach the occupants was critical to their survival.

Fortunately, this helicopter was equipped with a 406 MHz Emergency Locator Transmitter (ELT). The British Rescue Coordination Centre picked up the 406 MHz signal and raised the alarm. The ELT was incorrectly registered to a different aircraft, but by using the contact details in the database, they were able to determine that this was a legitimate emergency and find out details about the Bell 407 and its crew. Rescuers from a logistics company in the area were immediately directed to the accident site where survivors were waiting for help. Everyone involved in the accident was successfully rescued.

Distress signals from 121.5 MHz ELTs will cease to be monitored by search and rescue authorities worldwide from February 2009. The New Zealand Search and Rescue Council's Secretariat Manager, Duncan Ferner, says that 121.5 MHz ELT owners shouldn't wait to switch over to the new 406 MHz technology.

"The satellites that support the 121.5 MHz system are old and a number of them have failed already. It is now taking a lot longer to get an approximate fix on a 121.5 MHz ELT signal due to the drop-off in satellites.

"Digital 406 MHz technology is vastly superior to the old analogue 121.5 MHz system. A 406 signal can usually be picked up in a matter of minutes by a fleet of new satellites, while the old 121.5 MHz technology can take hours to get an approximate position."

Duncan says this is not the only benefit, "406 MHz beacons provide rescuers with a much more accurate position than 121.5 MHz beacons. This can make a life-saving difference when rescue services are searching for survivors after an air accident."

Switch to a 406 MHz ELT now and don't forget to register it.

Changes are being made to Part 91 to require most aircraft on the New Zealand register to install an automatic 406 MHz ELT by 1 July 2008. Full details can be found on the CAA web site under, "Rules & more – Notices of Proposed Rulemaking (NPRMs) Closed for Submissions".

Do not put off changing to a 406 MHz ELT, as the installation can be a complex task. In general aviation (GA) aircraft, 406 MHz ELTs must be installed and certified by a LAME rated on the aircraft type, and then the entire installation must be checked by an avionic rated LAME (who would normally carry out the 12 month checks in accordance with Part 43 Appendix F *Emergency Locator Transmitter Inspections and Tests).*

The owners of amateur built aircraft with a current Airworthiness Certificate can install a 406 MHz ELT themselves, but the installation must be supervised and certified by a LAME rated on the aircraft type. The entire installation must then be checked by an avionic rated LAME, as is the case with GA aircraft. If the amateur built aircraft is still being constructed then the owner can install the beacon, because the installation will be checked as part of the process to gain an Airworthiness Certificate for the aircraft.

It is important that 406 MHz ELTs are purchased from reputable New Zealand sources to ensure they are coded with the New Zealand country code, and they must be registered with the Rescue Coordination Centre NZ (RCCNZ). This will ensure that rescuers know as much as possible about the type of aircraft they are looking for. Registration is free, and a list of suppliers is available on the Switch to 406 web site, www.beacons.org.nz.

Digital 406 MHz beacons are more powerful, more accurate, and far more likely to result in a successful rescue than the old 121.5 MHz beacons they replace. The more advanced models also have built in GPS devices which can provide a very quick and accurate fix for search teams. So switch to a 406 MHz ELT now and don't forget to register it. ■

Advisory Circular Re-numbering

A large number of Advisory Circulars have been revised to standardise their numbering. Most of the changes are relatively minor, for example, a zero may have been removed from the AC number, or an A that was once used to indicate revision status has been removed from the end of the AC number.

All AC numbers now have the same format, ie AC# Rev #.

Some significant changes have been made to the ACs that are relevant to more than one rule part, for example the former AC120-01A. Such ACs have been given more than one AC reference number in an attempt to make it more obvious which aviation participants they relate to. These 'multi-reference' ACs replace ACs: 20-2A, 20-3, 90-1, and 120-01A.

If your organisation's exposition refers to, or includes ACs, remember to make the required amendments at the first opportunity.

ACs: 43-5A, 139-01, 139-06A, and 139-07A will be changed when new revisions are published shortly. AC61-1.18 may be delayed a little longer while it is revised.

All re-numbered ACs include a change notice. The revised ACs should be published and available throughout May 2007.

ACs are available on the CAA web site, see "Rules & more". A list showing the old and new numbering was published in the last Civil Aviation Rules Register Information Leaflet (CARRIL), and is also on the web site. We will revise the poster titled, "Civil Aviation Rules and Advisory Circulars", and distribute it with the next issue of *Vector*. ■

If you own a 121.5 MHz beacon, the time to switch to 406 is now.

121.5 MHz beacon technology is old and won't be monitored from February 2009. If you own a 121.5 MHz beacon, you should switch to new 406 MHz technology now.

406 MHz beacon technology is faster, more accurate and more reliable. It cuts down search area by 97% allowing help to get to you quicker.

406 MHz beacons save lives and are the new world standard. For more information, visit www.beacons.org.nz

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NZSAR council

RBR/SAR-0511D/TAB

Readers are encouraged to contribute their aviation experiences in order to share the lessons learnt. Please send your experiences to: The *Vector* Editor, Civil Aviation Authority, P O Box 31-441, Lower Hutt 5040, or Email: info@caa.govt.nz.

The single-engine aeroplane departed from Wellington bound for Gisborne on an IFR plan about an hour before dark, but ended up making an unplanned side trip to the beach. The pilot had flown the Mooney M20 to Wellington earlier in the day for business, and was on the way home with his two passengers when the excitement began. We take up the pilot's account on departure from Wellington.

We were on our way at 17:30, via the RUGDI Two departure. Passing 1800 feet, I contacted Wellington Control and was cleared to 9000 feet via the SID. My passengers were taking photographs on the way out, including one of the instrument panel, where all engine instruments were showing the expected indications. Just after this, as I leveled off at 9000 feet in IMC, the engine went from full power to idle.

My immediate reaction was to look at my front-seat passenger and lower the nose. I can very clearly remember the hollow feeling I had the instant it went from full noise to no noise. I immediately transmitted a MAYDAY call, telling the controller that I had a partial engine failure. He acknowledged my call and gave my position as 2.5 NM southeast of Paraparaumu.

I can very clearly remember the hollow feeling I had the instant it went from full noise to no noise.

I kept the nose down and concentrated on keeping the aircraft the right way up. The engine burst into life briefly, but went back to idle. I remember turning the boost pump on and noting that the fuel pressure was normal.

The radar controller vectored us out between Paraparaumu and Kapiti Island. We were in and out of stratus layers on the way down and from time to time I caught glimpses of the ranges. At 6000 feet I asked the controller to notify the emergency services, as I was quite convinced that we were not going to come out of this alive. The controller continued to give me vectors and kept me updated with position in relation to Paraparaumu, assuring me that we were clear of terrain.

I briefed my passengers on what had happened and that we were going to try and land at Paraparaumu airport. One thing that struck me on the way down was that the radio frequency had been full of chatter from aircraft departing from Wellington, and when I put out the MAYDAY call, all went quiet.

As we got lower, my stress levels were increasing. I remember the controller giving me vectors, I remember turning onto them, but I have no idea if I stayed on them or wandered off, thinking that 'over here' was a better option. At one stage, I told the controller that Kapiti Island was directly in front of me, and 30 seconds later I was asking him where it was.

As we got lower, the controller advised that we would lose radar coverage because of terrain, but to remain on his frequency and to call local traffic if I had time. Interestingly, I had the Paraparaumu frequency written on my flight log but I had to ask the controller for it. I eventually went visual at about 1000 feet, halfway between Kapiti Island and the coast. I felt like a huge load had been lifted off my shoulders but we were still not out of trouble. At least I could see where we were going, and immediately turned towards the airport.

About 700 feet, the engine coughed and stopped. The Mooney has a very good glide ratio, but we were just too low for the runway. I turned left and lined up on the beach at about 200 feet, lowering the gear and flaps. There were people on the beach, but they saw us and ran. The landing was very smooth, much better than the one I had done in Wellington earlier in the day! We were lucky that the tide was out and that the sand was very firm. We coasted quite a way before stopping. It was very different from a nice wide long runway – the trees and fences only metres from our wingtip went past very fast.

We sat in the aircraft, a bit stunned, for a moment before getting out. I phoned the National Briefing Office to say that we were on the beach and all okay, and the supervisor put me on to the controller who had talked us down. I could not thank him enough for the very professional way in which he handled the talk-down. I remember being quite emotional for a moment!

It wasn't long before the beach was swamped with emergency services and the public. Then what was I going to do with this aircraft stranded on a beach? I received great support from Kapiti Aero Club, the Police, and Coastguard. The aircraft was towed above the high-tide mark for the night, and loaded on to a helicopter trailer next morning. The Police arranged a guard for the aircraft and also arranged a motel for us.

That night my passengers wanted me to go out clubbing with them, but I just wanted to be by myself in the motel. I did not sleep a wink that night, playing the events over and over in my mind. Why did I do this, why didn't I do that, what if this had happened five minutes earlier, what if the tide was in, and so on. When you have a very close call like that, you look at things from a very different perspective.

When you have a very close call like that, you look at things from a very different perspective.

A few things stood out from the experience. I have done many hours competition flying including forced landings and spot landings. When you are training for forced landings, you generally go up on a clear day and have already gone through your checks and flown the flight before you even get into the aircraft. Also, if you don't pull it off you know that you can power away and have another go. When it happens for real in IMC and your mind is on getting ready to overhead the beacon, it is a very different kettle of fish.

Your mind load-sheds. I lowered the nose, not converting speed to height as taught. I did not adopt the best glide speed of 89 knots; instead we came down at 135 knots, which is pretty much our cruise speed. I didn't set the transponder to 7700, but we had an IFR squawk code. I didn't change fuel tanks. The tank selector in the Mooney in on the floor between the pilot's legs, and I didn't dare take my eyes off the instruments to look for it.

As soon as we went visual, I did raise the nose for the best glide speed – it was at about this time that the engine quit. I am pleased it didn't stop earlier, otherwise I would have lost my vacuum instruments as well. I would not like to have gone through that on partial panel. I was able to get a timeline from Airways; it took nine minutes from the MAYDAY until we were on the beach.

What did I learn?

- Always brief yourself before the flight on what are you going to do should you have an engine failure. That way it is still recent in your mind if needed.
- As soon as you have trouble, talk to ATC.
- I now take my survival kit on all cross-country flights.
- I am now a lot more cautious with my flying. I take a dim view of pilots who push the limits a bit too far and put themselves and others at risk.
- I always take my cell phone charger with me now, even when on a short cross-country flight. On this day I had so many people ringing me that my phone battery went dead.

I cannot speak highly enough of the Airways controller who talked us down. I am totally convinced that I would not be here today had it not been for the way he handled the emergency. While he may have been doing his job, I would like to see him receive some type of award, as three people owe their lives to him.

After the aircraft had been repaired, I returned to Paraparaumu with the owner to talk with the engineers before flying it home. The engine note changed on a couple of occasions on the way home, causing the hair on the back of my neck to stand up on end.

Vector Comment

A very fortunate outcome indeed. The pilot learned some valuable lessons here, and has candidly shared them with us. There are several 'what-ifs' to think about, such as what would have happened if it was dark; if the aeroplane was outside radar coverage, over mountainous terrain or the sea; if there was no aerodrome within gliding range, and so on.

While any flight carries a certain amount of risk, an IFR night flight in a single does raise the level somewhat. It is up to the pilot in command to assess the risk and decide if the flight really does need to be made. Most of the time, nothing goes wrong, but this case and another involving a Cessna 172 in similar circumstances (see accident report 99/3689 on the CAA web site) are graphic reminders of what can happen.

Good pre-flight planning, good flight management, and above all, having an emergency plan for all stages of the flight will give you a better chance of survival in the event of an emergency. ■

Flicker Vertigo

A single-engine aeroplane lands on a westerly runway just before sunset. It comes to a halt and sits on the runway for quite some time. Eventually, ground crew go out to investigate and find the pilot unconscious at the controls. He later says that the last thing he could recall was the propeller blades causing the sun to flash in his eyes.

A long straight road has a line of regularly-spaced trees on its western side. This road had a bad reputation for unexplained loss-of-control vehicle accidents, all late in the afternoon. The roading authority cut out some of the trees to create irregular gaps and wider spacing, and the accident rate drops dramatically.

A young man on the dance floor at a nightclub falls to the floor just a few seconds after the overhead strobe lights start flashing – he appears to be having an epileptic seizure. After a few minutes, he recovers, but that's the end of his night out.

What's the Connection?

The common factor here is 'flicker vertigo', a term that describes an imbalance in brain cell activity created by light sources that emit a flickering rather than steady light. Light flickering from 4 to 20 times per second can produce dangerous and unpleasant reactions in some people, including nausea, dizziness, migraines, unconsciousness, and even epileptic seizures (NASA *Callback*, 268).

While symptoms may range from vague and non-specific feelings of unease right through to epileptic seizure, the latter is very rare. According to the UK National Society for Epilepsy, about one in 200 people have epilepsy, and of these, only three to five percent have seizures induced by flashing lights. This is known as photosensitive epilepsy, and is most commonly induced by television or video games. There may be the occasional instance of flickering light inducing a seizure in a person who had no previous history or known susceptibility, but this would be very rare indeed.

Who's at Risk?

Some references place the upper limit of the susceptibility range as high as 30 Hz, although the actual range can vary from person to person. In aviation, helicopter pilots may have the most exposure to the critical flicker range, depending on the type of helicopter they fly. Direct sunlight being interrupted by the main rotor blades is a prime source of stimulation for a flicker vertigo attack. The 'flicker' rate (expressed in Hz) depends on the rotor rpm and number of blades – multiply the rpm by the number of blades then divide the result by 60. Examples from three helicopters in widespread use in New Zealand are:

- Bell 206: 2 blades, 394 rpm, 13.3 Hz;
- AS350 series: 3 blades, 390 rpm, 19.5 Hz;
- MD369D: 5 blades, 490 rpm, 40.8 Hz.

On a single-engine aeroplane, a two-blade propeller at 600 rpm will give a flicker rate of 20 Hz, which, along with the first two of our example helicopters, is definitely within the critical range. Flying a helicopter in a situation where the sun is shining through the rotor disk within the pilot's field of view, or taxiing an aeroplane at idle rpm towards a rising or setting sun are probably the highest-risk situations. A useful tip for engineers using a strobe light for main rotor tracking would be to keep the strobe light out of the pilot's field of view, and to avoid reflections off interior structure.

Avoidance

There are some avoidance tactics if a flicker situation is encountered – this can be on the ground as well as in the air – and action should be taken immediately before the flicker gets beyond being merely unpleasant.

Look away from the light source, be it the sun, floodlights, headlights or even a bright moon. If you cannot remove the source from your field of view, try shielding your eyes with one hand. Turning the aircraft (or vehicle) away may be difficult in some situations, but where it is possible, this may provide relief.

Do not close both eyes – apart from making flying or driving that much more difficult, closed eyes will still admit a certain amount of light through the eyelids, and a strong flickering light

source could still affect you. The results could be much more disorienting. Sun visors, where fitted, can be useful, particularly in a vehicle driving past a line of trees in low-sun conditions. It can block out the sun from your peripheral vision, although you will still have lower-intensity flickering light reflecting off the vehicle interior. Closing the eye on the same side as the sun may also help. If any symptoms beyond annoyance are experienced, stop as soon as it is safe to do so. Unfortunately, we do not have this option in the air, but handing over to the second pilot may be an option in a multi-crew aircraft.

Awareness

While not everybody may be susceptible to flicker vertigo, there is no easy way to say for certain whether an individual is 'immune' or liable to be affected. Screening by electroencephalogram (EEG) or by exposure to bright flickering light under controlled conditions are options, but these are not normally applied to aircrew candidates in the course of their careers. In the absence of certain knowledge of 'immunity', you should treat the threat of flicker vertigo as very real and, in the event of exposure to flickering light, take avoidance action as early as practicable. ■

From the Enforcement Files

A helicopter pilot recently pleaded guilty to 15 charges of operating an aircraft without the appropriate civil aviation documents, and 11 charges of acting as pilot of an aircraft without holding a current aircraft type rating.

Before gaining his Private Pilot Licence, the student pilot involved employed flight instructors to carry out work for his contracting company and provide him with flight instruction. This was achieved by incorporating his flight training with regular business trips from Christchurch to the West Coast. After the student pilot's flight instructor finished working for the contracting company on 10 September 2005, the student flew a Robinson R22 helicopter solo on 15 separate occasions, and a Hughes 500 turbine helicopter on one occasion, before he next flew with an instructor on 10 April 2006. Some of the R22 flights were solo cross-countries between Christchurch and the West Coast.

Rule 61.105 sets out the solo flight requirements for student pilots. Three of those requirements were not met in this case. Solo flights must be authorised by a current A, B, or C Category instructor (except first solos, which can only be authorised by an A or B Category instructor). The student must have received dual instruction within the last five hours of flight experience, unless authorised by an A or B Category instructor, and if the flight is a solo cross-country it must be authorised by an A or B category instructor.

On 26 June 2006, the student pilot was issued with a Private Pilot Licence. At the time his licence was issued, he held only a type rating for a Robinson R22 helicopter. Between 11 July and 7 August 2006 he flew a Hughes 500 turbine helicopter as pilot-in-command on 10 occasions, logging a total of 19.4 hours, including four cross-country flights from Christchurch to the West Coast. The pilot did not have a Hughes 500 type rating at the time these flights were conducted.

The pilot was convicted and fined a total of $5000, as well as $760 in court costs and solicitor's fees.

New Airspace Products

Both the GAP booklet and poster titled *New Zealand Airspace* have been revised. The poster has been changed to show the abbreviation for Common Frequency Zones (CFZs), and has been given a facelift.

The Good Aviation Practice (GAP) booklet has also had a general update incorporating the latest airspace changes.

To get these revised products, contact your local Field Safety Adviser (FSA), see page 23 of this *Vector*, or Email: info@caa.govt.nz.

A Vital Piece of Equipment

This article was written in a practical vein by an old helicopter pilot who wishes to remain nameless, but claims to have almost as many hours cleaning aircraft as he does flying them (we've told him a million times not to exaggerate).

I have heard it said that there is a vital piece of equipment that provides the VFR pilot with primary attitude indications, weather detection (both good and bad), traffic, and navigational data. In some aircraft, it can also indicate when you've forgotten to secure the oil filler cap. It's a magic bit of gear – sounds a bit like something you would find in a glass cockpit, but in reality it's the other way round – it's the cockpit 'glass', that most of us call the windscreen or windshield.

Like every other component on the aircraft, be it fixed or rotary-winged, the windshield requires periodic maintenance, and is one item that can benefit from TLC (tender loving care). In service, it is a great accumulator of dust, salt spray, entomological entrails, avian exhaust, and water in its liquid or solid states. Eventually, these accretions can reduce the flow of information from the outside world and if left unchecked, can stop it entirely. Even a small amount of accumulated grime can be a major problem if you are flying towards a low sun.

This is my version of TLC for windshields – I'm not claiming that it's the be-all and end-all, but it has worked for me for quite a number of years, and I offer the system as tried and tested.

The first step is to remove loose dirt and grit by gentle sluicing with clean water. Once the potentially damaging boulders have washed away, gently run the palm of your hand over the surface while still rinsing – this will detect any stubborn adhesions. Try rubbing at these with your skin (no rings, please), or if more force is required, a fingernail can be very effective, without being hard enough to damage the surface. Avoid using an abrasive or a hard scraper.

The windshield should then be either washed with a mild detergent solution (non-waxing car wash is effective) or cleaned with glass cleaner (the blue stuff in a trigger pack) and a clean cloth. For washing, do not use a brush, but rather a soft sponge, well rinsed beforehand to remove grit. Rinse again and dry with a chamois cloth.

Some people will attack the windshield at this stage with a can of furniture polish. Some people swear by it – I swear at it. Legend has it that the MD of a company I once worked for would instantly dismiss anybody he found using the well-known product, but I don't know if he ever made good this pledge. It's great on the coffee table or the dresser, but not on windshields. Use it on a machine that has wipers, and you will see what I mean. If you do have wipers, it pays to be meticulous in cleaning the windshield, as starting wipers on a dirty surface may grind tracks across it.

Once the windshield is perfectly clean (I use the glass cleaner treatment twice), I then apply a rain repellent. This is available under more than one brand (I prefer brand X) but essentially, it is a siloxane (silicon polymer) in an isopropyl alcohol carrier. It causes water to 'bead' and roll off the treated surface, usually with minimal assistance. This is applied with a clean cloth and left to dry to a haze, later being buffed with a soft clean cloth. The treatment can be repeated to ensure total coverage. If you are unsure about the effect of the alcohol component on your particular plastic, try it on a non-critical small area first.

I cannot speak highly enough of rain repellent. For the non-believers, my suggestion is to try it on part of the windshield (start on your car if you aren't game to try it on the aircraft at this stage) and note the difference. The results are dramatic. If you can't wait for a rain shower, hose the windshield and watch the behaviour of the water. On a drizzly day, you will get a covering of fine droplets – these can be dispersed with a slosh of water or, on a single-engine aeroplane, by the prop wash. On a helicopter, they will clear magically once translational speed is reached, if you haven't bothered to clear the windshield beforehand. (How did you see where you were going?). A useful side

effect of the rain repellent is that it makes bug debris, especially beeswax, much easier to remove. In my experience, one treatment lasted for about 25 flight hours, or a month, whichever came first.

On one job, I just managed to treat the pilot's windshield on a medium twin helicopter before being called out on a search. En route, we flew through a tropical downpour, and the co-pilot's view was limited to a shimmering sheet of water being slopped around by the wiper a couple of feet in front of him, while on my side, I enjoyed a perfectly clear view of the outside, wet though it was, and without the wiper.

Sometimes you will see people vigorously attacking plastic windshields with a rag and pot of polish without any prior rinsing or preparation. So the grit and grime gets ground into the surface, and next time you fly towards the sun, you see those terrible sparkly concentric rings around the sun, no matter which way you look. Properly washed and rain-treated, a windshield should not require harsh polishing except to remove scuffs and scratches – and this operation should be entrusted only to an experienced professional.

What about ice or frost? Lukewarm water is good – hot water could cause cracking – and avoid using the edge of your credit card unless the windshield is glass. Even then, regard that method as a last resort.

Like a lot of equipment, a windshield is most effective when clean – look after it and it will look after you. Works for me. ■

Planning an Aviation Event?

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

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

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

Supplement Cycle	*Effective Date*	*Cut-off Date With Graphic*	*Cut-off Date Without Graphic*
07/8	2 Aug 2007	24 May 2007	31 May 2007
07/9	30 Aug 2007	21 Jun 2007	28 Jun 2007
07/10	27 Sep 2007	19 Jul 2007	26 Jul 2007
07/11	25 Oct 2007	16 Aug 2007	23 Aug 2007

Validity of Examination Credits

Photocopy this and place on your noticeboard

There have been recent changes to the validity of examination credits for pilots sitting PPL, CPL, ATPL and IR flight tests. Here is a tabulated summary of the validity for each licence or rating being sought.

Licence or Rating The licence or rating that you are applying for.	**PPL**	**CPL**	**IR** Instrument rating	**ATPL**
Qualifying Period Available time from the first exam credit to the last.	2 Years	3 Years	3 Years	3 Years
Validity Period Available time from the last exam credit to the pass date of a flight test.	3 Years	3 Years	3 Years	10 Years (5 Years Air Law)
Old Exam Credits Exam credits gained before 11 May 06 must be used by.	11 May 2008	11 May 2009	11 May 2009	11 May 2011

All CPL examinations and ATPL Human Factors examination credits gained before 11 May 2006 can be credited towards a PPL written examination credit until 11 May 2008.

CPL credits acquired after 11 May 2006 cannot be used towards a PPL credit.

For more information regarding the validity of examinations, see the CAA web site, www.caa.govt.nz, under "Rules & more – Rules Index – Part 61 *Pilot Licences and Ratings*".

New Authority Members

Two new Authority members have joined the Civil Aviation Authority, replacing outgoing members Hazel Armstrong and Robyn Reid.

Authority Chairman Rick Bettle said former Air New Zealand Captain Ross Crawford and the former Chairman of Airways Corporation Errol Millar would bring a diverse range of skills and experience to the governance of the CAA.

"I would firstly like to acknowledge the hard work and dedication of both Hazel Armstrong and Robyn Reid. Ms Armstrong has served on the board as Deputy Chair since 2001, and I am particularly grateful to Ms Reid, for her efforts as Chair of the board's audit committee," Mr Bettle said.

"The Authority welcomes Captain Crawford and Mr Millar, and we look forward to working collectively to improve New Zealand's aviation safety and business environments into the future."

Deputy Chair

Errol Millar

Errol Millar is a professional Management Consultant and former Chairman of Airways Corporation.

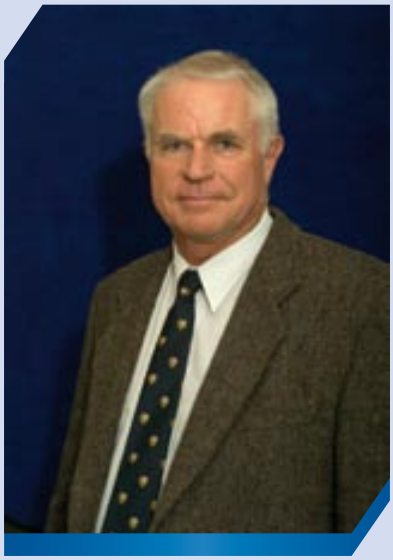
The former accountant, Member of the New Zealand Institute of Directors, and Fellow of the Chartered Institute of Logistics and Transport in New Zealand was appointed to the board of Airways in 1997, where he served for 8 years, including four as Chair.

Mr Millar was the first Executive Director of the Aviation Safety Board, set up after the Erebus crash, and was also Secretary of the Transport Advisory Council, a joint industry and departmental ministerial advisory group.

He worked for the Ministry of Transport for several years, across the transport modes, before moving into management consultancy in the late 1980s.

Mr Millar currently sits on six boards, including the Southland District Health Board and is Managing Director of the Wellington-based Management Consultancy firm Aquestra Ltd (formerly Arrus Knoble). He will serve as Deputy Chair of the Authority.

"I have a fairly profound knowledge of the institutions involved in New Zealand aviation, and I am looking forward to working collectively with my board colleagues to see the CAA sharpen up its processes with a view to enhancing its reputation both internally and externally," Mr Millar said.



Captain Ross Crawford

Captain Ross Crawford is a recently retired Air New Zealand Captain who has 20,000 hours experience and who holds current A-category and flight examiner ratings.

Captain Crawford has been a flight instructor for more than 40 years on types ranging from Piper Cubs to Boeing 747s. His airline experience includes time on the F27, B737, B767, B747-200 and B747-400. He has worked in general aviation charter flying and aerial topdressing in Australia and New Zealand.

During his 34 years at Air New Zealand, Captain Crawford also served periods as Fleet Manager of the F27s, Training Manager of the 747s, and Chief Training Captain.

He has been a Walsh Memorial Scout Flying School instructor for the past 18 years.

Rotorua-based, Captain Crawford is also a Member of the New Zealand Institute of Directors, New Zealand Warbirds, and the Rotorua Aero Club.

"I see myself as an industry representative on the board, able to bring technical expertise and operational currency to the table," Captain Crawford said.

New Director of Civil Aviation

CAA General Manager Government Relations, Steve Douglas, has been appointed as the next Director of Civil Aviation.

Mr Douglas takes up the new appointment 1 June 2007. He succeeds interim Director Russell Kilvington (former Director of Maritime New Zealand), who has held the role for an agreed six-month period, following the retirement of former Director John Jones late last year.

Chairman of the Authority Rick Bettle said Mr Douglas's reputation and experience made him a stand-out candidate for the role.

"The Authority is delighted to be in a position to appoint someone with such a long and distinguished career in aviation, both technically, and managerially.

"Mr Douglas is a former aircraft design engineer who, for the past 12 years, has held senior management roles within the CAA. We have particularly seen the impact of his expertise in the areas of aviation rules and policy development, and in the evolution of the CAA's highly regarded international reputation," Mr Bettle said.

Mr Douglas has also previously served as Assistant Director responsible for the CAA's certification and safety monitoring functions. He is a qualified engineer, holding an MSc in Aircraft Design from the Cranfield Institute of Technology, England. His career has been entirely devoted to aviation, including five years in a technical services role at Air New Zealand, and a similar period in commercial satellite design at British Aerospace.

"My background at the CAA means I have accepted this new position with a thorough understanding of the organisation's strengths and weaknesses and of its relationships with key players, both within the New Zealand aviation industry, and the wider international community.

"Internally, the organisation has a number of changes under way, and

my priority is to begin rebuilding with clear direction and a unity of purpose," Mr Douglas said.

Mr Bettle said Mr Douglas was selected in a thorough process after an international search.

"The continuity and consistency made possible by an internal appointment is significant. The CAA has come through a period of internal change. It has made, and continues to make, excellent safety progress, delivering significant reductions in fatalities and serious accidents across most sectors. There is still, however, much work to do.

"In making this appointment, the Authority members reached unanimous agreement that both our customers in the aviation industry, and our staff could be reassured that a known quantity of such a high calibre was at the helm," Mr Bettle said.

The Director of Civil Aviation is the Chief Executive of the CAA. The position is directly accountable to the Authority members, and is responsible for the day-to-day operation and running. The Director has several independent powers controlling entry into and exit from the New Zealand aviation industry. ■

Flight Instructor Seminars

BACK TO THE FUTURE

For all instructors in the aviation community

In August 2007 the CAA will present the next round of Instructor Seminars with the theme of "Back to the Future" (back to basic instruction for future instruction).

The keynote speaker is motivational trainer Colin Cox. These seminars will be held over two days, with learning continuing during the informal parts of the days and evenings. To enable this to happen, all participants will be staying at the seminar venues. A non-refundable registration fee of $50 will be charged, which includes accommodation (twin share) and all meals.

The registration close-off date has been extended by two weeks, and no registrations will be accepted after this date.

Closing date for registration is 14 July 2007

Flight Instructor Seminars 2007

Hamilton – 1 and 2 August (Hamilton Airport Inn)

Masterton – 9 and 10 August (Copthorne, Solway Park)

Ashburton – 14 and 15 August (Ashburton Hotel)

All current Part 149 and Part 61 instructors are invited to register. Places are limited, so please register early. The registration form is on the CAA web site. All registrations must be accompanied by evidence of instructor rating currency (ie, copy of last renewal flight test report) and the registration fee. Substitutions will be permitted.

Shady Advice – Taxiing Tips

Generally speaking, the general aviation (GA) pilot does not have the luxury of a ground marshaller to guide them during taxiing and parking operations. Yet, even with the aid of a ground marshaller, good times can still go bad.

Can I fit into the gap?

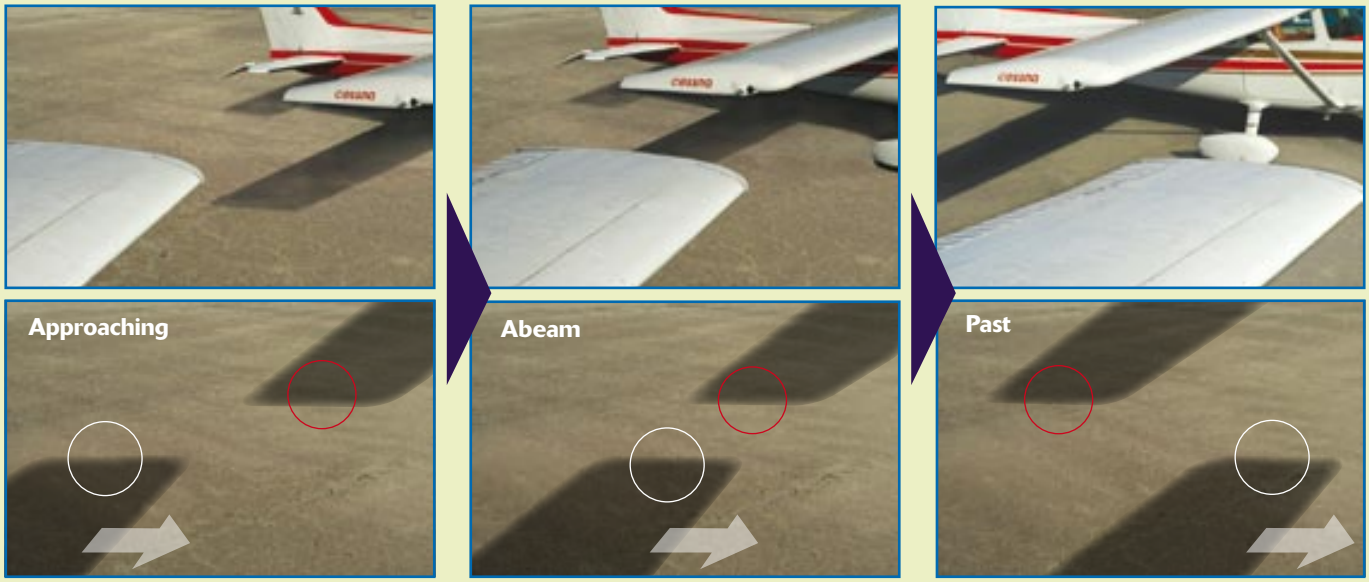
The GA pilot, however, does have a couple of things on their side. If the pilot is at a major airport and follows the taxi lines on the tarmac, you can almost always bet that the aircraft wing will not clip anything. If the taxi lines are painted to accommodate a Boeing 737 wing, then a Cessna 172 wing will swim in the gap. The GA pilot can also turn the engine off and manoeuvre the aircraft by hand if there is doubt as to the space available. A tow hook can be worth its weight in gold, as it allows the pilot to manipulate the position of the aircraft easily, on the ground.

Taxiing operations at smaller airports can be fraught with problems. From excessive propeller wash to heavily congested aprons or queues at the fuel pumps, a hidden danger lurks at every corner. By showing good airmanship some of these dangers can be minimised. For example, don't leave your aircraft unattended at the fuel pumps. Think about the effect the propeller wash will have on others while doing run ups and during taxiing operations. If there are painted parking lines on an apron, use them as they will maximise the available parking space.

While taxiing and manoeuvring your aircraft around parked aircraft, it is sometimes difficult to judge the size of the gap into which you are trying to taxi. But by using the technique illustrated below, difficulty judging aircraft wing width will be a thing of the past, at least on sunny days.

If the absence of the sun is hindering your parking progress, look elsewhere for visual clues. Can you see a reflection of the wing tip in a window? How about in a puddle on the ground? Don't fixate just on the shadows, keep an eye out the front window as well. If there is any doubt, shut down the engine, and move the aircraft by hand.

If all of these little techniques are used in conjunction with each other, situational awareness should be improved, and so should your parking skills. ■



Glance at the shadows of the wings on the ground. If the shadows aren't going to touch, neither will the wings.

Nominations for Director's Awards and Flight Instructor Award

Awards are presented each year to an individual, an organisation, and a flight instructor with an overwhelming 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 2006 organisation award went to the Northland Emergency Services Trust, the 2006 individual award went to Richard McKay, an engineer from Flightline Aviation, and the 2006 Flight Instructor Award went to Mark Carter, Massey University School of Aviation's Chief Flying Instructor.

The 2007 awards will be presented at the annual Aviation Industry Association conference in Auckland, 18 to 20 July 2007.

Anyone can nominate an individual, an organisation, or an instructor to receive an award. Nominations close on 18 June 2007 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 5040

Gone – No Address

When people fail to update their details with the CAA, we lose track of aircraft owners. Mail has been returned from the last address of the following aircraft owner. If the owner is not located the aircraft will be de-registered. If you know the whereabouts of the aircraft or owner, please contact Julia Reed, Aircraft Registrar, Email: reedj@caa.govt.nz, Tel: 0–4–560 9575.

NAME:	AIRCRAFT:	REGISTRATION:
Robert I Udy	Auster J5P	ZK-AVN

How to Get Aviation Publications

Rules, Advisory Circulars (ACs), Airworthiness Directives

All these are available for free from the CAA web site, www.caa.govt.nz. Printed copies can be purchased from 0800 GET RULES (0800 438 785).

AIP New Zealand

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

Pilot and Aircraft Logbooks

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

Aviation Safety & Security Concerns

Available office hours (voicemail after hours).

0508 4 SAFETY
(0508 472 338)
info@caa.govt.nz

For all aviation-related safety and security concerns

Accident Notification

24-hour 7-day toll-free telephone

0508 ACCIDENT
(0508 222 433)

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

Field Safety Advisers

Don Waters
North Island, north of a line, and including, New Plymouth-Taupo-East Cape
Mobile: 027–485 2096
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Workshop Goes Off With a Bang

– or Should That be a Lahar?

Mt Ruapehu, 24 March 2007

Amongst the deluge of rain that hit the North Island in March 2007, and only days after the Lahar on Mt Ruapehu, a band of hardy atmospheric scientists, geophysicists, meteorologists, and aviation specialists gathered in Rotorua. They came from all over the world, including representatives from the International Civil Aviation Organization, the World Meteorological Organization (WMO), and IATA, for the 4th International Workshop on Volcanic Ash, hosted by the CAA.

New Zealand was well represented, with attendees from the Geological and Nuclear Sciences Institute, MetService, Airways, the CAA, Air New Zealand, and Mount Cook Airline.

The workshop was convened under the auspices of the United Nations WMO. It is held every three years, to ensure scientific advances in the field of volcanic ash ejection and behaviour in the atmosphere are used to develop procedures for mitigating volcanic ash risk in aviation.

The main focus of the participants was on:

- Forecasting and detecting volcanic eruptions
- The detection and tracking of ash clouds
- Ash dispersion modelling
- Eruption Source Parameter development

The presentations, discussion, and programme decisions from the meeting will eventually be woven into the operational systems developed and maintained by the United Nations International Airways Volcano Watch Operations Group (IAVWOPSG).

Two key results came out of the meeting. A matrix was developed showing where volcanic science is at the moment, and what science still needs to be achieved to best support the IAVWOPSG. There was also a call for an international agreement between the volcano monitoring fraternity and the IAVWOPSG to ensure better information flow.

Participants were taken on an impressive field trip to several geothermal areas, and for many, Rotorua's distinctive aroma was a new experience. Unfortunately a planned flight over Mt Tarawera was not possible due to bad weather.

Dr Herbert Puempel from the WMO said, "I would like to reiterate my very personal gratitude to the CAA and the organising committees for a splendid job in focusing the meeting on the right issues, and giving us a wonderful time in the truly dramatic and topical setting of Rotorua. You have instilled in all participants a wish to come back to this beautiful country soon. The quality of the organisation, the guided tours, and the entertainment was outstanding and something to be remembered for a long time."

The meeting was a great success and exceeded the expectations of the WMO and all participants thanks to the hard work of Peter Lechner and Keith Mackersy of the CAA, and Andrew Tupper from the Australian Bureau of Meteorology. ■

OCCURRENCE BRIEFS

LESSONS FOR SAFER AVIATION

The content of *Occurrence Briefs* comprises notified aircraft accidents, GA defect incidents, and sometimes selected foreign occurrences, which we believe will most benefit operators and engineers. Individual accident briefs, and GA defect incidents are available on CAA's web site **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-BXZ, Fletcher FU24-950M, 19 Dec 03 at 15:00, 10 SW Te Kuiti. 1 POB, injuries 1 fatal, aircraft destroyed. Nature of flight, agricultural. Pilot CAA licence CPL (Aeroplane), age 57 yrs, flying hours 14,335 total, 5000 on type, 222 in last 90 days.

The pilot was spreading lime on a farm property. The aircraft had completed a number of flights from the strip that day at the same takeoff weight as at the time of the accident. The aircraft crashed approximately 170 metres from the end of the strip. The investigation could not establish any conclusive reason for the accident. A full accident report is available on the CAA web site.

CAA Occurrence Ref 03/3733

ZK-DXH, Cessna U206F, 4 Nov 06 at 11:22, Whenuapai. 7 POB, injuries, 1 minor, damage substantial. Nature of flight, parachuting. Pilot CAA licence CPL (Aeroplane), age 26 yrs, flying hours 481 total, 55 on type, 62 in last 90 days.

The aircraft incurred an engine failure at 2500 feet. Parachutists were instructed to exit the aircraft, and a forced landing was then made into a vineyard. During the landing, the aircraft collided with a number of fence posts and wires. The pilot received minor injuries. CAA investigation found that the engine had stopped operating because of catastrophic mechanical failure. The damage was such that a definitive cause could not be determined.

CAA Occurrence Ref 06/4059

ZK-GGO, Schleicher ASW 15, 6 Jan 07 at 16:00, Hiwinui. 1 POB, injuries, 1 minor, damage substantial. Nature of flight, private other. Pilot CAA licence nil, age not known, flying hours 179 total, 99 on type, 11 in last 90 days.

Club flying was being carried out from a farm airstrip at Hiwinui (near Palmerston North) because of the airstrip's proximity to nearby hills for ridge flying. The strip had not been mown, just grazed; the wind was about 15 knots, with approximately 10 degrees crosswind. During the second takeoff of the day, the glider pilot released from the tow when getting too far out of position. The glider was running left due to the wing catching in long grass and was probably near flying speed. During the ensuing ground-loop, the glider became airborne, rotated 180 degrees laterally, and then nosedived into the field from about 6 to 12 feet. The glider was severely damaged, and the pilot received superficial cuts and bruises to the lower legs.

CAA Occurrence Ref 07/55

ZK-RMM, Mooney M20C, 18 Feb 07 at 11:45, Raglan. 3 POB, injuries nil, damage substantial. Nature of flight, private other. Pilot CAA licence PPL (Aeroplane), age 59 yrs, flying hours 2462 total, 76 on type, 27 in last 90 days.

After a normal approach and an apparent abnormal short-field landing, the lefthand main wheel separated from the landing gear; the left wing dropped, causing a propeller strike. The propeller, engine, LH flap, and LH wing trailing edge were damaged, and there was minor creasing to the LH forward fuselage. The LH undercarriage broke close to where it was welded to the wheel axle. The mode of failure appeared to be a straight overload. All undercarriage rubbers showed deformation possibly due to an abnormal landing.

CAA Occurrence Ref 07/439

GA DEFECTS

The reports and recommendations that follow are based on details submitted mainly by Licensed Aircraft Maintenance Engineers on behalf of operators, in accordance with Civil Aviation Rules, Part 12 *Accidents, Incidents, and Statistics*. They relate only to aircraft of maximum certificated takeoff weight of 9000 lb (4082 kg) or less. These and more reports are available on the CAA web site, 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
NDT = non-destructive testing
P/N = part number
SB = Service Bulletin
TIS = time in service
TSI = time since installation
TSO = time since overhaul
TTIS = total time in service

Auster J1B

Auster rubber shock cord

A rubber shock cord on the right main undercarriage broke during landing with the aircraft at close to maximum all up weight. The aircraft was uncontrollable during the landing roll and veered into a ditch beside the runway, suffering significant damage. The aircraft had been in an accident two years earlier, during which time the left main undercarriage had sustained damage and had subsequently been repaired. It appears that the rubber shock cord on the right main undercarriage had also sustained damage, which was not detected, and which left the cord in a weakened state.

ATA 3210 CAA Occurrence Ref 06/4800

Britten-Norman BN2A-26

Alternators

While joining downwind an electrical failure was experienced, with loss of comms. 7600 was squawked and tower was contacted by cellphone on landing. Investigation revealed that both alternators were not operating correctly. The RH alternator main diode had failed. The LH alternator firewall break plug had been modified incorrectly, with no connection between alternator and buss bar. The alternator warning light was showing normal operation.

ATA 2430 CAA Occurrence Ref 07/30

Cessna 150

Cessna air intake line

The owner of the Cessna reported that the engine began to miss as soon as the aircraft became airborne. The pilot decided to land directly ahead, and during the landing run the engine failed completely. The investigation found a large amount of rain water had entered the air ducting, which is connected to the exhaust shroud and carburettor. The water had been ingested in to the carburettor and caused the engine problem. The water would normally drain through the exhaust shroud but had managed to pass in to the air ducting. Better engine bungs will be installed when the aircraft is parked outside in the rain.

ATA 7500 CAA Occurrence Ref 06/2863

Cessna 172F

Cessna 172F bulkhead P/N 0512024-1

The bulkhead behind the rear seat was buckled near the seat rear attachment points. The distortion to the bulkhead had been induced by a load being applied to the rear seat attachment points, most likely from a passenger subjecting the seat to a sudden excessive load. TTIS 7579 hours.

ATA 5310 CAA Occurrence Ref 06/2360

Cessna 172N

Bendix D4RN2021 magneto and ignition harness P/N 10-382555-14

Soon after takeoff, the engine began to backfire and the aircraft shook violently. The engine was delivering only partial power so an emergency landing was made back at the aerodrome. Investigation revealed a defective magneto that had many unserviceable parts. A 500-hour inspection was carried out iaw DCA/ELECT/51A. New contacts, capacitors, LH coil, rear housing, and ignition harness were fitted. This defect clearly shows the need to carry out 500-hour inspections as detailed by the manufacturer. TSI 65 hours, TSO 1154 hours.

ATA 8500 CAA Occurrence Ref 06/2586

Cessna 421B

Cessna 421B right main landing gear

During an approach to the airfield, the landing gear was selected down, at which stage the pilot observed an un-safe warning light for the right main landing gear. Despite following the checklist procedures, the warning light remained on. On touchdown the warning light went out and three greens were indicated. The landing gear rigging was found to be out of limits. The landing gear was re-rigged and then operationally tested.

ATA 3210 CAA Occurrence Ref 06/1862

Eurocopter EC 120 B

SAFT 151 CH1 battery temperature sensor P/N 414429

It was reported that some battery temperature sensors in SAFT batteries P/N 151 CH1 prior to 2002 have been found defective. The wires connected to the thermistor on the battery temperature sensors in some cases have not been soldered. The heatshrink is the only thing holding the wires on to the thermistor terminals. After a period of time the wires have been found to vibrate off the terminals. The battery sensor is not presently used in any aircraft warning circuit. Evidence is being gathered to present to the manufacturer. TSO 964 hours, TTIS 1062 hours.

ATA 2430 CAA Occurrence Ref 06/2419

Eurocopter EC 130 B4

Wire loom

The helicopter emergency flotation system inadvertently deployed in flight. At the same time, the engine spooled back to idle and the caution panel illuminated. The pilot declared an emergency and conducted an autorotation. Engineering investigation discovered a panel screw had chafed through a wiring loom, causing a short circuit.

ATA 3270 CAA Occurrence Ref 06/3754

Gippsland GA8

Gippsland rear spar doubler channel P/N GA8-551021-17

During an inspection the internal rear spar doubler channel was found cracked in two places. The spar was replaced. TSI 917 hours, TTIS 1207 hours.

ATA 5500 CAA Occurrence Ref 07/62

Hughes 269C

Nordam Transparency Division 269C right window P/N 259-400-4

The right main window of the helicopter blew in while it was cruising at about 85 knots. The window was made from 0.08 inch rather than 0.10 inch Perspex. The manufacturer has been advised. TTIS 180 cycles, TTIS 180 hours.

ATA 5610 CAA Occurrence Ref 06/2063

Nanchang CJ-6

Nanchang engine support frame P/N H2-6403-00

The top-left mounting lug on the engine support frame had broken free of the frame. The separation of the lug had occurred sometime in the 33 hours since the last inspection. The reason for the mounting lug failing on the engine support frame could not be determined. The support frame was replaced. TSI 33 hours.

ATA 7120 CAA Occurrence Ref 06/2995

NZ Aerospace FU24-954

Pacific Aerospace nose gear P/N 245207

During the landing roll the pilot noticed that the nosewheel steering was limited. On inspection it was found that the noseleg had a broken tube on the steering linkage assembly, and one of the two safety wires was almost broken through, holding by only a few strands. The lower nosewheel steering assembly and safety cables were replaced. The cause of the damage was attributed to excessive nosewheel loads as a result of operating from a substandard airstrip surface. TSO 70 hours.

ATA 3220 CAA Occurrence Ref 06/3067

Pacific Aerospace Cresco 08-600

Pacific Aerospace Corporation aileron fairing P/N 08-24112-1

An agricultural operator reported that the aileron fibreglass tip came loose and parted from the aircraft during flight. The fairing was later recovered, and it was found that no damage was evident to the attachment holes across the top section of the fairing, whereas the holes along the bottom had torn out. The operator suggested that it appears the attachment screws had been deliberately removed by someone, possibly the night before. This opinion was supported by the fact that the only screw hole on the top side of the fairing which was torn out was not accessible. The incident happened on the first flight of the day. The pilot did not notice if the screws were missing during his pre-flight inspection.

ATA 2711 CAA Occurrence Ref 06/387

Piper PA-31-350

Piper NLG door actuator arm P/N 41794-00

After takeoff all u/c legs retracted, but there was a failure of the hydraulic system to pressurise, and the nosewheel did not lock up; it hung outside for the rest of the flight. It was found that a stiff noseleg door actuator lever P/No 41794-00 had restricted the final movement of the NLG assy into the uplock. Thus, when the u/c lever 'clicked' to the mid position as is normal, the noseleg fell down, as the hydraulic pressure was now bypassed from the leg retraction/extension actuators. The NLG door actuator arm was removed, cleaned, lubricated, refitted and tested. TSI 52 hours.

ATA 3220 CAA Occurrence Ref 07/98

Piper PA-34-200T

Continental LTSIO-360 alternator drive coupling P/N 635796

During the cruise it was determined that both ADF needles were not indicating correctly. The flight was terminated and the aircraft returned to its departure point. The fault was traced to an electrical supply problem. The righthand engine alternator drive coupling was found to be defective so it was replaced. TTIS 170.5 hours.

ATA 3451 CAA Occurrence Ref 06/2424

Pitts S-2E

Maule SFS tailwheel fork P/N TW-61A-2

During the completion of airworthiness directive DCA/BRAKE/5, a crack was detected in the single arm fork of the tailwheel assembly. The crack was easily visible. The single arm fork was replaced. TTIS 220 hours.

ATA 3270 CAA Occurrence Ref 06/4652

Robinson R44

Magneto

During an engine strip at 1758.2 hours time since new, metal was found in the oil filter. The left hand magneto idler attachment bolt and stud was found to be broken off, allowing the shaft to move around, causing the metal in the oil filter.

ATA 7410 CAA Occurrence Ref 06/2487

Tecnam P2002-JF

Tecnam P2002-JF elevator control rods P/N NK

Whilst exiting the aircraft, the student stood on the cover below the seat. The cover was punctured by a bolt control assembly, thereby stopping all the aft movement of the control column. On some aircraft the control rod had an attachment bolt installed rearward facing which allowed the thread section of the bolt to puncture and jam on the floor skin under the pilot's seat. The aircraft manufacturer supplied replacement parts for all the aircraft affected, and installation instructions have been amended. TTIS 71.8 hours.

ATA 2731 CAA Occurrence Ref 06/2741

Aviation Safety Coordinator Training Course

CHRISTCHURCH
21 and 22 June 2007

Attention all aviation organisations

If your organisation provides commuter, charter, scenic, agricultural, training, sport, or other aviation services you need an Aviation Safety Coordinator.

The CAA is running a **free** two-day course to train new aviation safety coordinators, and to refresh and re-inspire existing ones.

You will receive a comprehensive safety manual, and access to all of the latest CAA safety resources and support.

"I thoroughly enjoyed the two-day Aviation Safety Coordinator course I attended in Wellington last year. I found the course to be well balanced with a great delivery and excellent resources. I would highly recommend the course to all Chief Executive Officers, Managers, and Safety Coordinators."

Nathan McGraw, Flight Safety Officer
Mount Cook Airlines

There is no course fee and lunch is provided (accommodation, transport and other meals are not provided).

Check the CAA web site, www.caa.govt.nz, under "Safety Information – Seminars and Courses" for an enrolment form and further information. Or contact Rose Wood, Tel: 0–4–560 9487, Fax: 0–4–569 2024, Email: woodr@caa.govt.nz.

2007 ASC Course

Thursday 21 and Friday 22 June • Antarctic Centre, 38 Orchard Road, Christchurch