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POINTING TO SAFER AVIATION

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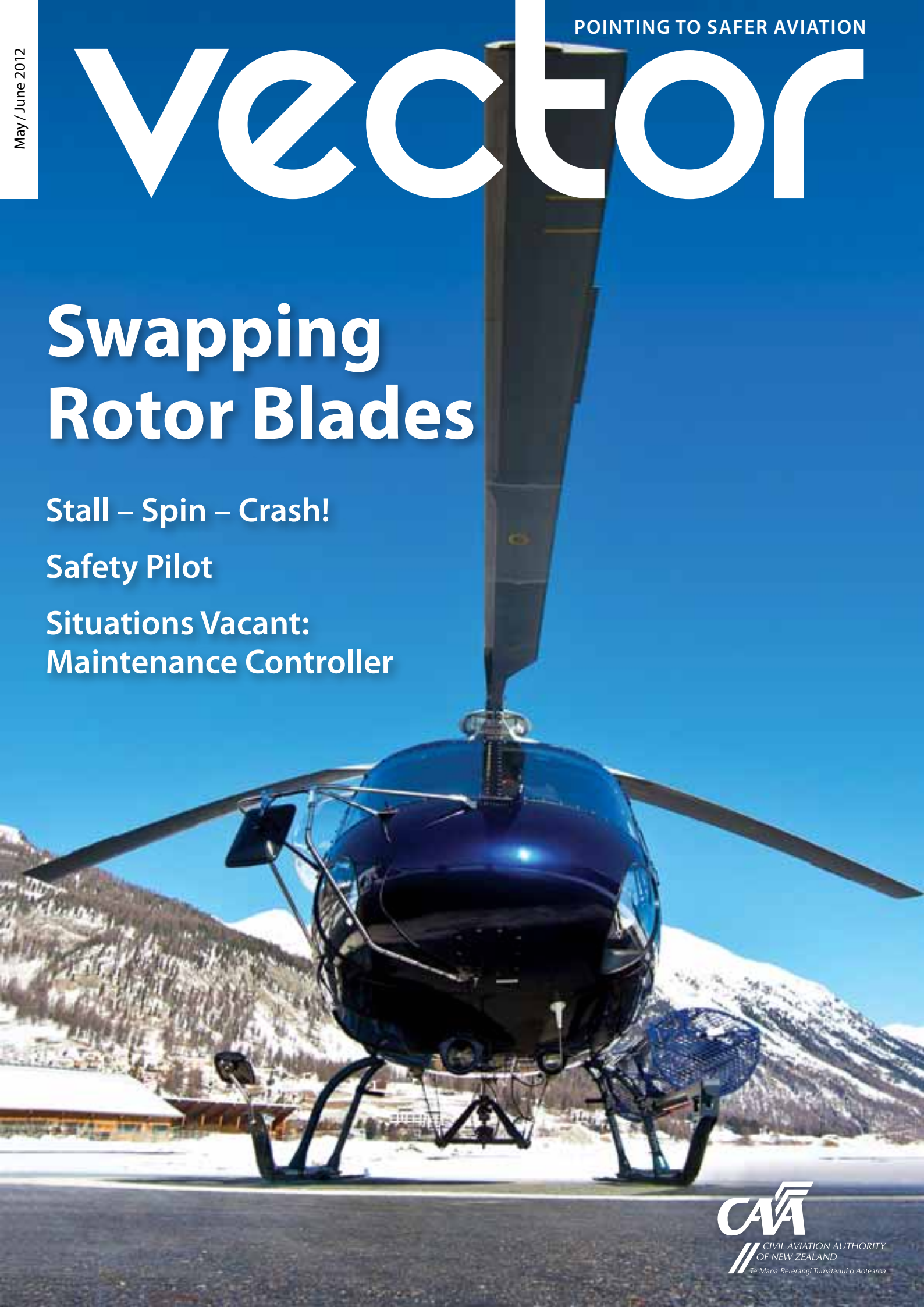
Swapping Rotor Blades

Stall – Spin – Crash!

Safety Pilot

Situations Vacant: Maintenance Controller



CAA
CIVIL AVIATION AUTHORITY
OF NEW ZEALAND
Te Mana Rererangi Tūmatanui o Aotearoa

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In this issue...

Swapping Rotor Blades

Do you maintain helicopters? Then read on to avoid falling into the potential trap of doing an unequal rotor blade swap, especially among the Eurocopter AS 350 and 355 helicopter variants.

Stall – Spin – Crash!

Die. Usually this is how this scenario ends, but this incredibly lucky pilot lived to tell the tale. This is your opportunity to learn from his experiences.

Safety Pilot

The rules require a safety pilot for simulated instrument flight, and require that pilot to have a current licence. In the absence of further specific requirements or information for the safety pilot, this article provides some useful guidelines for making the safety pilot safer.

Situations Vacant: Maintenance Controller

You need a maintenance controller, and it looks like you've drawn the short straw. So here's a job description to help you understand what you are getting into, plus the dates of this year's courses so you can get yourself along and get qualified.

Cover photo: Up close and personal with a Eurocopter AS 350 B3 and its main rotor blades. Image ©istock.com/JetlinerImages. See the article on page 3.

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Swapping **Rotor Blades**

Take care that a helicopter main or tail rotor blade swap is at least an equal swap and not an unintended downgrade.

Swapping of rotor blades among the various Eurocopter AS 350 and AS 355 variants has reportedly been a common maintenance practice. Well, the blades are all interchangeable, aren't they? They even appear identical.

A Recent Case

In a recent example, an experienced helicopter maintenance engineer, unaware of any limitations, swapped AS 350 B3 main rotor blades for AS 350 B2 blades, during maintenance. The result was that the B3 flew for a period of time with B2 blades fitted.

When later reviewing the airworthiness limitations section for the B3, and cross referencing the parts catalogue, the engineer discovered an anomaly and immediately contacted Eurocopter for clarification. Europcopter confirmed that the B2 main rotor blades could not be flown on the B3 model, but only those approved part numbered blades (355A11-0030-00, 02 and 04) listed in the B3 airworthiness limitations section and parts catalogue.

Eurocopter recommended that the blades be immediately removed for inspection and evaluation, and stated that only those blade part numbers listed in each helicopter parts catalogue are approved to fly on the respective helicopters.

The engineer submitted a Defect Report to the CAA.

Misconceptions

What may be misunderstood among engineers is that not all rotor blades are equal and not all are interchangeable, particularly with respect to the AS 350 B3 helicopter. The B3 main rotor blades can be swapped down to the other model AS 350s with no problem, but only those part numbered blades listed in the B3 parts catalogue can be flown on B3 models. Those part numbers do not include the other AS 350 or 355 blade part numbers.

The engineer advised that part of the confusion comes from the fact that the AS 350 BA, B1, B2, B3, and AS 355 F1 and F2 blades are all grey coloured and appear identical. The difference is with the B and D models that are teal blue in colour. A number of these blades are interchangeable, except for the B3.

From the engineer's perspective, and discussion with other senior engineers in the industry, blade changing and swapping has been a common, familiar and straightforward task. Unfortunately because of this, engineers may not always refer to the various manuals as they ought to when swapping blades, as in his example, and misunderstand what is, and what is not, permissible.

For example, the B3 main rotor blades are strengthened versions of the other helicopter variants blades, so that they can carry the heavier loads of the B3 helicopter. The different part numbered non-strengthened 'lower model' blade is not to be used on the B3 because they are not designed to bear the additional loads carried by that helicopter. There is no problem going the other way though, and having the strengthened blades fitted on the lower weight helicopter models.

Help

The Eurocopter (and other helicopter types) service manuals and parts catalogues contain all the necessary information for engineers to ensure they fit the correct rotor blades to the right model. To make sure no mistakes are made, refer to the manuals every time blades are fitted.

If there is any doubt or confusion, contact the manufacturer or its agent for clarification. ■

Stall – Spin – **Crash!**

This scary accident resulted in a wrecked aeroplane, but almost unbelievably, no major injuries. There are a number of important lessons to be taken from this pilot's experience.

I had taken off from my farm property to fly to nearby Whakatane to refuel.

En route I decided to practise a few stalls, so I climbed to 4000 feet and carried out the HASELL checks. I then closed the throttle and used progressive back pressure to maintain height. I have carried out numerous stalls in this aircraft before, and found it to be quite docile, however, this time I wanted it to develop a wing drop stall so I held the joystick back for longer than I normally would. The aircraft then stalled suddenly, with a wing drop, and flicked over.

I reacted instinctively with opposite aileron, but then quickly realised my mistake and tried to apply the correct recovery procedure for a wing drop stall – centring the aileron and using opposite rudder, however, by now the aircraft was in a steep nose down spin.

I have not been trained in spin recovery, so I attempted a variety of control inputs using stick, rudder and power to regain control, but nothing worked. I did, however, manage to unwittingly manoeuvre the aircraft out of a nose down spin and into a flat spin.

Once in a flat spin the engine stopped. At this point I realised I could do nothing more than wait for the impact.

Incredibly, I survived with only minor injuries. Mostly because the aircraft struck the slope of a small rise and then slid down it. In addition, the undercarriage collapsed and splayed outwards, helping to dissipate the impact energy.

Photo courtesy of Alan Marks, New Zealand Police.

Lessons

Taking the opportunity to practise stalls (and other manoeuvres that require proficiency) is a good idea, especially if your flight would otherwise have been a simple A to B flight.

Practising stalls at a safe height, one where you would usually expect to recover by 2500 feet, is clearly sensible. Carrying out the HASELL checks is also a must.

It all started to go wrong, though, when the pilot tried to lift the downgoing wing with aileron, causing the aeroplane to enter a spin.

But wait, if we step back a little further, it is clear that this pilot should have briefed himself better on stalls and stall recovery before even attempting the first stall. A little time spent refreshing yourself on the actions you will take to recover from a stall, and the actions you would take in the event of a wing drop stall (and even practising them while on the ground) is time well spent. It would have been even more prudent to explore the flight envelope of this aeroplane with an instructor before attempting it solo.

There is plenty of debate among pilots and instructors about the benefits of practising these types of manoeuvres versus learning to identify the symptoms of a stall and recovering before one is entered. The new Flight Instructor Guide recommends instructors expose students to these types of manoeuvres in order to increase their skill level and their ability to deal with the situation if it ever arises.

This pilot, like many, had never done any spin training, but now thinks it would be a good idea if pilots could gain access to an approved aircraft and appropriately qualified instructor.

Here is how the *Spin Avoidance* GAP booklet describes an entry into a spin:

> If the aircraft is yawed, a roll will develop in the direction of yaw because the outer wing has increased speed, which has increased its lift. The descending (inner) wing gains an increased angle of attack. If this wing is at or near the stall angle, its lift reduces. When one wing goes down, the other will rise, and exactly the opposite happens to the rising wing. The relative airflow now produces a reduction in angle of attack on the up-going wing, which may be below the stall angle (in effect it has become less stalled). The effect of these differences in lift will be to produce an accelerating roll rate in the direction of the initial yaw.
>
> These changing angles of attack also affect drag. The down-going wing with an increased angle of attack suffers increasing drag. The up-going wing gets a drag reduction. The difference causes even more yaw towards the down-going wing.

At some point, the spin in this accident sequence turns into a flat spin, probably due to the application of power. Here's a little more from the *Spin Avoidance* GAP booklet:

> Flat spins rotate at a slower rate than upright spins, but to the pilot they appear to be rotating much faster. That's because the pilot's line of sight is parallel to the horizon – you see much more going past. Yaw rates in a flat spin are usually very fast, but the rate of altitude loss per turn is usually less than in a steep nose-down spin.

Once in the flat spin the engine stopped due to fuel starvation caused by the low fuel quantity, and that fuel being flung out towards the wingtips, away from the fuel tank outlets.

This pilot was incredibly fortunate to have survived the accident. Through a lucky combination of a slower descent rate and a sloping hill in just the right spot, this pilot lived to tell this tale and has learnt a valuable lesson we can all learn too. Let's leave the last word to him…

Do your homework – it is important to understand your aeroplane and its stall characteristics at different weights, and be familiar with what is in the flight manual.

And if you are trying something new (in order to increase your experience) – get an instructor involved before you get in over your head.

You can get a free copy of the *Spin Avoidance* GAP booklet by emailing info@caa.govt.nz. ■

Safety Pilot

Instrument flying practice 'under the hood' requires a safety pilot, in accordance with rule 91.125. Other than stating that the safety pilot has to have a current pilot licence, and that the aircraft has dual controls, the rule has no other specific requirements to be met by the safety pilot.

A 'current' pilot licence means that all recent experience and medical requirements must be satisfied, but as for the licence itself, it can be anything from a private pilot licence upwards. On the face of it, this means you can take virtually any licensed pilot along as a safety pilot, but would you really want to do that?

First, consider whether the intended practice is basic manoeuvres only, or flying IFR procedures for navaid recency, then consider the adequacy of the safety pilot's knowledge and experience. You may want to use another instrument-rated pilot as a safety pilot while operating under IFR, for instance.

Secondly, the safety pilot must have a clear idea of their duties and responsibilities, and not just be 'along for the ride'.

This can be accomplished by a pre-flight briefing, which should cover at least the following points:

- Who is pilot-in-command? In the case of dual instruction, this is undoubtedly the instructor.
- The nature of the intended exercise. For example, basic climbs, descents and turns on to compass headings, while keeping within the flight test limits; or a series of instrument approaches conducted under IFR.
- A short risk management exercise, detailing the likely risks associated with the flight, and how to manage them.
- Agreement on the method of handing over control – usually the "I/you have control" in common use.
- The concept of a 'sterile cockpit', meaning any dialogue during critical stages of flight (eg, takeoff and climb; approach and landing) is to be confined to the business at hand, rather than social chit-chat.
- Actions in the event of emergency, eg, who does what in the event of an engine failure. (Someone has to fly the aeroplane while the hood, 'foggles' or screens are removed.)
- How to accurately and succinctly report other traffic that may conflict, and how to advise avoiding action, eg, "turn left 30 degrees, helicopter at one o'clock, level". Note that the responsibility for collision avoidance rests with the pilot-in-command at all times while in VMC, even if the aircraft is operating under IFR. See rule 91.229(a)(1).
- Selection of a minimum safe altitude in the practice area, and monitoring it. The briefing could include a requirement for a warning when that minimum is approached, for example, "500 feet above minimum" with the option of including additional warnings at 200 or 100 feet to go. Different organisations may have their own specific callout requirements.

Photo iStock.com/jkullander

- The altitude monitoring and calling could be further developed when flying instrument approach procedures – the safety pilot could be briefed on the minimum safe altitudes for each stage of the approach, for instance. Having a second copy of the approach chart for the safety pilot to refer to would be helpful in this situation.
- Keeping the aircraft clear of cloud (if VFR) and clear of terrain.
- Keeping clear of, or within, controlled airspace as applicable.
- Monitoring the correct radio frequency, and ensuring that the pilot flying has received and understood any relevant calls.

A good practice for a safety pilot would be to take along a copy of the relevant VNC, and continually monitor the aircraft position with regard to controlled airspace, training areas, instrument approach routes and areas of high traffic concentration.

Additionally, where the safety pilot is not instrument rated, you may wish to show them what is involved in the various types of instrument approach and related radio calls, so that they know what to expect. While this may be unfamiliar territory for them, stress that while they may be monitoring the procedure, their primary responsibility is lookout – the eyes should be outside the cockpit at all times while in VMC. This represents a particular challenge for examiners, who must not only monitor the candidate's performance, but fulfil the safety pilot role while the candidate is on instruments.

The pilot flying should keep the safety pilot informed as to their intentions – "left level 360 in 30 seconds, all clear?" for example, instead of suddenly snapping into a turn with no prior warning. At least with some advance notice, the safety pilot can ensure that the area of the intended manoeuvre is actually clear beforehand, instead of frantically craning the neck once it's under way. Mind you, a certain amount of that will be required in any case!

Some flying training organisations may already have their own minimum licence and experience requirements and a standard brief for safety pilots carried on simulated instrument flights – if not, now would be a good time to set one up.

Who Logs the Time?

Clearly, the pilot-in/9command logs the whole flight as command time. On a dual flight, this will be the instructor, of course. The pilot who flies the aircraft under simulated instrument conditions will log the time 'under the hood' as simulated instrument flight time. Any actual instrument meteorological conditions encountered on an IFR flight will be logged in the 'actual' column by the pilot flying, although in the case of a dual flight, the instructor may also log the 'actual' time. For further clarification, refer to rule 61.31.

Note that there is no provision for a person carried purely as a safety pilot to log the flight time. An exception to this would be where a co-pilot on a multi-crew aircraft is also acting as safety pilot in addition to normal co-pilot duties – in which case the time would be logged as co-pilot regardless.

Summary

As you will have surmised, there is more to being a safety pilot than just the bare rule requirements. The task carries significant responsibilities, and a thorough preflight briefing by the pilot-in-command will enable the safety pilot to be an effective, professional crew member rather than just a passenger. The briefing items in this article are not necessarily all that could be covered, but certainly would be a useful basis on which to build a procedure. ■

Dropping Objects from Helicopters

Ping-pong balls, fake snow, mini rugby balls, lollies – you name it, and someone will probably want to chuck it out of a helicopter.

If you are going to drop objects from any aircraft then you will need to comply with all the relevant rules, and have carried out a risk assessment on the operation. You do not need CAA approval.

There are many rules you must comply with, just as you would for any other flight. However, the particular rule covering this type of operation is rule 91.235 *Dropping of objects* "A pilot of an aircraft shall not allow any object to be dropped from that aircraft in flight unless the pilot has taken reasonable precautions to ensure the dropping of the object does not endanger persons or property".

The CAA considers the following to be some of the 'reasonable precautions' you should take.

Crowd Control

Usually the desire to drop objects involves crowds of people, and probably at an organised event. You will need to ensure that there are adequate crowd control measures, so people on the ground are reasonably protected from a stampede.

Clear Flight Path

Importantly, you must plan how you will approach the area and exit the area, making sure that you have a clear run in and out. It is also important to establish an emergency landing site, in the unlikely event that you need it.

Not for a Single?

A proper risk assessment may show that a single is unsuitable, especially if you have to overfly persons or property. Refer to rule 91.127(d)(3).

Assistant

You will need an assistant to help you drop the objects, because clearly you won't be flying and trying to eject objects at the same time, and in that case you must be licensed to carry passengers.

Your assistant should be well-briefed on the operation, be able to communicate with you via the intercom, and be restrained in an approved seat (not roaming free in the aircraft).

Hazards on the Ground

You must make an assessment of any ground-based hazards, for example, wires, merry-go-rounds, roller coasters, banners, balloons and any other object that may interfere with the aircraft or flight path.

With all of that under control, good luck, but if you feel you would like some advice, you can contact the CAA, just email info@caa.govt.nz. ■

Drugs and **Alcohol**

Am I a user or an abuser?

An interesting question that demands an answer – not necessarily by ourselves but with the help of medical professionals, and those we associate with closely at work and socially.

Alcohol is a common recreational drug, and it and other drugs are used by many people in society, either legally or illegally. This can spill over to aviation and impact on safety, and even affect a person's ability to obtain or hold an aviation medical certificate.

The Effects

We mostly think we know about the effects of substance (drugs and alcohol) use or abuse when flying (or driving), but do we really? Do we fully appreciate the detrimental effects that substance use can have on us, especially when it comes to piloting aircraft?

To the uninformed, piloting an aircraft may appear somewhat glamorous and straightforward. The reality is that aircraft piloting, regardless of the aircraft type, is a complex task that involves the interpretation of a range of sensory inputs. The task requires of the pilot continuous and coordinated sensory, cognitive and motor functioning.

Dr Dougal Watson, the CAA Principal Medical Officer, says the demands of flying an aircraft are much greater than those for driving a motor vehicle.

"The pilot is exposed to additional factors such as the hypoxia of increasing altitude, high noise levels, the requirement for radio communication with the outside world, higher accelerations during manoeuvring, and visual-vestibular (sight and balance) illusions with the potential for loss of three dimensional orientations," Dr Watson says.

How Much Is Too Much?

"Even quite low levels of alcohol and certain drugs (legal and illegal) can act to impair the human faculties required to fly in a safe and effective manner. The ingestion of alcohol and certain drugs influences virtually every system in the human body in some way or another. The effect of alcohol most pertinent to aviation is its impairment of a variety of central nervous system functions.

"Research has shown that there is no measurable level of blood alcohol that is safe for aviation. Any blood alcohol level elevation is associated with a reduction in performance and capabilities and thus reduces a person's ability to safely pilot an aircraft.

"Having a zero alcohol level is essential for aviation safety, but even with such a level, the after-effects of its use, such as a 'hangover', could make a pilot unsafe to fly," Dr Watson cautions.

Other Drugs

Illicit drug taking is an offence and has no place in aviation, but what about 'legal' drugs?

Legal drug consumption (eg, medicines, or over-the-counter medications), could have similar impairing effects to alcohol, and should always be treated with caution. Always check with your aviation Medical Examiner, or the CAA medical unit, before mixing any drugs with flying.

Assistance

A collaboration of aviation industry groups has done excellent work in establishing an alcohol (and drugs) related support and assistance programme. The safety objectives of the Human Intervention and Motivation Study (HIMS) programme are supported by the CAA, and can be found at www.hims.org.nz.

The Rules

Rule 19.7 *Intoxicating Liquor and Drugs*, requires pilots not be intoxicated so as to be impaired. This impairment relates to the use of "any intoxicant, sedative, narcotic, or stimulant drug or preparation".

Part 67 *Medical Standards and Certification*, describes the standards that relate to alcohol and drug use.

Read On

"Alcohol Consumption and Medical Aviation Safety (MIS 014)". CAA web site, www.caa.govt.nz, "Medical – Medical Information Sheets".

"Alcohol Issues", September/October 2011 *Vector*. CAA web site, www.caa.govt.nz, "Publications".

Alcohol Advisory Council of New Zealand web site, www.alac.org.nz. ■

For the **Record...**

Keeping accurate and up-to-date records is not only sound business practice, it is also a legal requirement for just about every aspect of a commercial enterprise. In the case of aircraft time-in-service records, the rules requirements apply also to private (ie, non-commercial) operators; and for flight crew logging of flight times, the rules apply to all flight crew, commercial and private.

CAA auditors and investigators are still finding examples of poorly-kept or even non-existent records, with the operators concerned seemingly unaware of the requirements. A common deficiency is in the maintenance of daily flight records; another is the incorrect logging of flight times and aircraft time in service.

What's the Difference?

There are two particular definitions in Civil Aviation Rules, Part 1 *Definitions and Abbreviations*. In summary, **flight time** is 'chock to chock' time and is what goes in your flight crew logbook and flight and duty records. **Time in service** is what you enter in the aircraft logbooks, and is 'takeoff to touchdown' time.

Some years ago, an operator was using a logging system that involved subtracting 10 minutes from each end of the flight time, resulting in 'four-minute' flights (for time-in-service purposes) across Cook Strait. Point-to-point Woodbourne to Wellington flights would have to operate at Mach 1 to achieve this – and they weren't operating jets at the time. (Nor did the CAA receive any complaints of sonic booms in the area!)

What's Required?

Pilot Logbooks

These are required by rule 61.29, and the main point here is that a pilot logbook is a legal document, and must be retained permanently unless the holder's licence is revoked. The rule requirements are quite prescriptive, and it would be worthwhile to familiarise yourself with these from time to time – the guidelines in the front pages of your logbook may well be out of date by now.

Apart from the usual basic details, the logbook must show for every flight, "the purpose of the flight, including the place of departure, any intermediate landing, and the place of arrival", although 61.29(c)(2)(iii) provides for the case where a number of similar flights (eg, agricultural, parachuting, glider towing) are performed. Provision is also made in 61.29(c)(2)(ii) for computer-generated records, but note the requirements in 61.29(d) for a written summary. Note also that incorrect entries must be altered only by putting a line through them and adding the correct information beside the entry or on a new line. This precludes the use of correcting fluid or patches.

On completion of each logbook page, the holder must total all columns and certify that all entries to date are correct. At this point too, don't forget to carry the totals over to the next page.

Daily Flight Records (DFRs)

This is a separate requirement from pilot logbooks, technical logs and aircraft logbooks. Depending on the type of operation, these are required by one of rules 91.112, 115.455, or 135.857. (The current 91.112 reference to 137.503 is not valid at this time, the amended rule not having come into force.)

An 'operator of an aircraft' is required to maintain daily flight records. As for pilot logbooks, the rules requirements are quite specific – and they apply as much to private owners as to commercial operators. There is no standard form for DFRs – a computer spreadsheet would suffice, as long as all the rules requirements are complied with. Some commercial operators use a 'duplicate' book that combines the functions of the daily flight records and technical log, and these are usually designed around the needs of the operator. These combined records are provided for in rule 91.619(c).

Note that these are **daily** flight records – not a summary of several days' worth of flying, as has been found in some instances. The details of each flight must be entered, and the records retained for 12 months.

The proposed rule 137.503 listed additional requirements for agricultural operators, including the purpose of the agricultural aircraft operation, and for each applicable location, the name and quantity of the material that is dispensed. Most of what 137.503 would have required has to be recorded anyway, to comply with rule 19.103 *Agricultural operators – statistical returns*.

Maintenance Records

These must be kept (rule 91.617) for each airframe except Class 1 (ie, single-seat) microlights, and for each component having a finite life or recommended TBO (time between overhaul). Time in service and cycles if applicable, as well as the maintenance records required by rule 43.69, are recorded in the appropriate maintenance logbooks.

Despite there being no requirement for maintenance records for a Class 1 microlight, it can only be beneficial to keep records – for instance, how would you prove the time in service to a prospective buyer? The claim that it was owned by a little old lady who used it only to fly to church on Sundays would sound a little hollow.

Aircraft logbooks (Form CAA2101) have detailed completion instructions on pages 2 and 3.

Aircraft, engine, and propeller logbooks are available from The Colour Guy, on 0800 GET RULES (438 785).

Technical Log

Rule 91.619 requires an operator to provide a technical log for the aircraft, and the most common type of technical log is the Form CA006. The rule specifies the details to be entered on the log, but the CA006 is laid out so that it is pretty much self-explanatory. There is some further detail in AC91-6 if required. Note that there is no provision in the rule that exempts Class 1 microlights, so you must maintain a technical log and it could be a de facto maintenance record.

The CA006 *Technical Log* has space for 68 entries, and when up to date, gives a 'snapshot' of the aircraft's current hours and maintenance status. Additional maintenance, such as agricultural role equipment changes in the field, can be recorded on Form CAA400 *Maintenance Record Sheets*, the duplicate being kept with the relevant technical log, and the original with the primary maintenance records. Instructions for completing the CAA400 are listed on the separator cards supplied with the forms.

Technical logs, maintenance record sheets and separator cards are available free from the CAA – just email your request to info@caa.govt.nz.

The Paper War

It seems like a paper war – but who's winning? You are, when you think about it. Keeping accurate and up-to-date records makes life easier for everybody: maintenance intervals aren't exceeded, you can justify needing the next two days off duty, you can prove you weren't where someone claimed you were at the time, and there are any number of other good reasons. One last request – write legibly, please! ■

Photo by Gusto, using Logbook Pro® as an example.

Photo courtesy of Civil Aviation Safety Authority, Australia

Situations Vacant: **Maintenance Controller**

Some do it just for love, others need a little more remuneration than that, but having a maintenance controller for your organisation (or aircraft) is a critical part of your organisation's structure.

There seems to be some confusion about what a maintenance controller does and does not do. The organisation that provides the maintenance for an aircraft may not necessarily have a good enough understanding of a company's exposition to enable them to be the maintenance controller and the maintenance provider.

We hear so often from maintenance providers that "we already maintain the aircraft so we are already doing the job of the maintenance controller" which tends to indicate they have no understanding of the differences between the role of a maintenance planner for a maintenance provider and a maintenance controller for an operator.

So here is a clear position description of what a maintenance controller is.

Position Description

The Maintenance Controller is an organisation's senior person responsible for the control and direction of maintenance.

Experience Required

A pilot or maintenance engineer licence is preferable, and in some circumstances is a requirement.

Operators of Three or Less Aircraft

For an organisation operating three or less aircraft, and operating from a total of two or less bases, you must have sufficient knowledge of maintenance to be able to ensure the aircraft is maintained in an airworthy condition, and that any maintenance required by its maintenance programme is satisfactorily accomplished. This can be achieved by completing an approved course.

Part 135 Organisations

You must have a clear knowledge and understanding of the maintenance sections of the organisation's exposition, as well as the applicable maintenance provisions of Part 135 *Air Operations – Helicopters and Small Aeroplanes.*

You must have sufficient knowledge of maintenance to be able to ensure the aircraft is maintained in an airworthy condition, and that any maintenance required by its maintenance programme is satisfactorily accomplished. This can be achieved by completing an approved course.

You must undertake any examination or test that the Director may require in order to determine your competency to perform the maintenance planning and control functions.

Part 125 Organisations

You must have a clear knowledge and understanding of the maintenance sections of the organisation's exposition, as well as the applicable maintenance provisions of Part 125 *Air Operations – Medium Aeroplanes.*

You must have the experience and qualifications necessary for a Part 125 *Air Operations – Medium*

Aeroplanes organisation, as found in Part 119 *Air Operator – Certification*, Appendix A.

Generally that means:

- hold, or have held, an aircraft maintenance engineer licence, **and**
- have at least three years' experience performing maintenance on aircraft of a similar size and type as that to be operated by the organisation, or have completed an approved course, **and**
- have at least one year's experience certifying aircraft for release-to-service,

  or

- experience acceptable to the Director including at least five years' experience responsible for the control and direction of maintenance and the continuing airworthiness of aircraft of a similar size and type as that to be operated by the organisation.

Responsibilities

To ensure the maintenance is controlled and directed on behalf of the Operator.

To ensure the maintenance for each aircraft is carried out in accordance with the maintenance programme.

To ensure all life-limited parts and components do not exceed their allocated time in service.

To ensure replacement parts are ordered in a manner which prevents unscheduled down-time.

To amend the relevant minimum equipment list.

To liaise with the CAA regarding the maintenance programme and the reporting of defects.

To ensure the operator meets the requirements of rule 91.603 *General maintenance requirements*.

To provide clear direction to the maintenance provider as to what maintenance is required before each scheduled maintenance visit.

Once maintenance has been completed, ensure:

- all required maintenance has been completed,
- maintenance records are completed and the return to service paperwork issued,
- ground runs completed – and recorded if required,
- operational flight checks completed – and recorded if required, and
- a new technical log is issued.

To track all maintenance requirements on all aircraft and engines including:

- scheduled maintenance – hourly and calendar,
- out of phase maintenance – as required by the manufacturer, operator or CAA,
- repetitive airworthiness directives and service bulletins,
- each finite-lifed component, and
- each overhaul-lifed component.

Prepare technical logs, including any maintenance required before the next inspection.

Transfer the information provided by the maintenance provider after the completion of maintenance to the aircraft log book, including;

- updating component list,
- out of phase maintenance,
- repetitive airworthiness directives,
- new airworthiness directives,
- service bulletins,
- weight and balance changes,
- log cards, and
- completed inspections.

Update aircraft daily flying records and transfer to log books.

Maintain airworthiness directives file.

Preferred Qualifications

Attendance at a CAA Maintenance Controller's Course – a shameless plug for our course, see below.

Our Approved Course

The CAA runs regular Maintenance Controller Courses throughout the country. If you are a maintenance controller who hasn't been to this course, or want to become one, then you should attend our course.

The cost is minimal, but the benefits are enormous. You will learn what it means to be a maintenance controller, and how to carry out your function correctly. Our instructors are experienced LAMEs, and have a wealth of experience in the aviation industry, both having previously been chief engineers.

Details are on the CAA web site, under "Seminars and Courses". ■

New Chief Executive/ **Director of Civil Aviation**

Meet Graeme Harris

While improving the safety performance of the aviation sector has long been the goal of the CAA, new Chief Executive and Director of Civil Aviation, Graeme Harris, says he wants that done in a way that maximises aviation's economic contribution to the country.

"The CAA and the aviation industry will increasingly be working together to achieve that objective."

Graeme began his aviation career as a radar mechanic in the Air Force, after briefly dallying with the idea of becoming a teacher. He soon became an engineering officer, studying at RAF College Cranwell, and serving in the United Kingdom, Singapore, New Zealand, and Australia. He became Maintenance Flight Commander of No. 2 (Skyhawk) Squadron in Nowra under an agreement with the Australian Government, before returning to New Zealand as Squadron Leader of Ohakea's Avionics Maintenance Squadron.

He retired from the Air Force after 23 years, and moved into the power industry, working for Powermark, and latterly Transpower, variously controlling power to the lower central North Island, and the whole of the South Island.

In 1998, Graeme returned to aviation, taking a role as a CAA Safety Auditor. He resigned in 2000 due to a combination of frustration with the organisation, and a better job offer.

"I felt the CAA at that time was doing a lot, but was more focused on activity, rather than effectiveness."

Graeme moved to industry as Quality Assurance and Risk Manager within the Mount Cook Airline's Executive Team. Four years later, he returned to the CAA as General Manager Personnel Licensing and Aviation Services, with a secondment as Chief Operating Officer, and has in recent months driven the change programme, restructuring and refocusing the CAA.

Authority Chairman, Nigel Gould, says Graeme's appointment was made after an open search that attracted strong applicants both nationally and internationally.

"I am very pleased that an internal candidate came through after an extensive, independent evaluation process.

"Graeme has been leading the changes being implemented at the CAA, and his work is already evident in the newly focused organisation. He has the widespread endorsement of both the industry and the Authority." ■

International Recognition for **Former Director, Steve Douglas**

Former Director of Civil Aviation, Steve Douglas, has been personally thanked for improving the safety of the global air transportation system, and for strengthening the partnership between the FAA and the CAA.

The tribute from Acting FAA Administrator Michael P Huerta, was presented to Steve in Wellington at the FAA/Asia Pacific Bilateral Partners' meeting hosted by the CAA in March – one of Steve's last formal engagements as Director of Civil Aviation.

Steve became Director of Civil Aviation in June 2007, after 12 years in senior management roles at the CAA. He resigned from the CAA in September last year, agreeing to continue to head the organisation until April, while a successor was sought.

Authority Chairman, Nigel Gould, says in five years as Director, Steve made a considerable contribution during what has been a time of substantial change and review.

"I have had the opportunity to work closely with him on significant issues such as the internal restructuring of the CAA, the development of its Strategic Direction Document, and the Funding Review.

"I would also like to personally acknowledge Steve's considerable patience in working with someone who was on a rapid learning curve about the aviation system during our time working together."

At his farewell, Steve spoke about the privilege he felt working for an organisation charged with the important function of serving the public interest in aviation safety.

"I am proud to have led the CAA and to have played a part in the development and success of the New Zealand civil aviation system", he said. ■

Steve Douglas (left) accepts a plaque in recognition of his contribution to aviation safety from the FAA's Deputy Assistant Administrator for Flight Safety, John Hickey.

Federal Aviation Administration

FAA/Asia Pacific **Bilateral Partners' Meeting**

Held in Wellington from 27 to 29 March 2012, the 14th annual FAA/Asia Pacific Bilateral Partners' Dialogue Meeting was attended by representatives from the FAA and 10 other Asia Pacific civil aviation authorities. The meeting followed its traditional format of two 'authority' days and one 'industry' day, with an additional 54 attendees at the industry day session.

In opening the industry day, John Hickey, FAA's Deputy Assistant Administrator for Flight Safety, announced that from next year, the meeting will revert to its original focus of aircraft certification, separating out flight standards issues, which had become a significant proportion of the meetings in recent years. Accordingly, the first Annual Flight Standards Asia Pacific Meeting (AFSAM) has been scheduled for 14–15 August 2012, in the greater Los Angeles area. The next Bilateral Partners' Meeting will be held in Bengaluru (Bangalore), India, in April 2013.

A common thread running through the industry day presentations was the need for greater rules harmonisation between civil aviation authorities. While ICAO sets out Standards and Recommended Practices in the form of Annexes to the Convention on Civil Aviation, the global level of compliance is currently only about 60 per cent, with some States as low as 20 per cent.

The difficulty in obtaining type certification for aircraft or other aeronautical products in other countries, even when the item has been certified in its home country, highlighted the need for bilateral agreements.

An insight into the sometimes convoluted dealings with multiple authorities was provided by Mike Pervan and Richard Leaper of Altitude Aerospace Interiors, a specialist aircraft finishing company. The company holds a CAR Part 146 Design Organisation Certificate, is an EASA-approved design organisation, and through a network of other design and manufacturing organisations, is among other things, an authorised supplier to Boeing. During the four years of its existence, the company has developed a single set of procedures acceptable to all authorities it deals with. Richard stressed that the key to global harmonisation was bilateral agreements between civil aviation authorities. A typical task such as the fit-out of a Boeing Business Jet, can typically involve three separate authorities, with one extreme case involving seven.

While global airworthiness standards are now very similar, more harmonisation is still required, even within regulatory authorities (where differing interpretations are sometimes encountered),

A stunning example of a Boeing Business Jet completion by Altitude Aerospace Interiors Ltd, a Part 146 Aircraft Design Organisation.

Richard noted. In his earlier remarks, John Hickey mentioned that significant progress had been made in this regard in the past 10 years, and the same degree of improvement over the next 10 years would be an achievement to look forward to.

The importance of aviation to the Asia Pacific region was highlighted in a presentation by Andrew Herdman, Director-General of the Association of Asia Pacific Airlines, with regional growth between now and 2030 projected to be 250 per cent, with Asia Pacific's share of the global market up to one-third at that point. This estimate, however, is reliant on recruitment and training of a skilled workforce to keep pace with development, and Andrew remarked that this is even now at a critical stage.

At the close of the industry day, John Hickey made special mention of retiring Director of Civil Aviation Steve Douglas, noting that Steve, with his sharing of wisdom and his calm demeanour, had been involved in the Bilateral Partners' meetings from the outset, and had represented New Zealand at most of them. ■

Design Delegation Holders

Every other year the CAA holds a seminar for its design delegation holders. They are specific people within a Part 146 Aircraft Design Organisation who can approve design changes to an aircraft on the CAA's behalf – in fact, they are in effect acting as the Director of Civil Aviation when they do this.

So every other year we gather them together to keep them up-to-date on any recent and proposed changes, and to hear from us and other interesting people. This year they had the opportunity to have a discussion with a panel including Steve Douglas, the outgoing Director of Civil Aviation and Graeme Harris, the incoming Director of Civil Aviation, as well as Mark Hughes, CAA General Manager Airlines.

This year's speakers included the FAA talking about the recent changes to Federal Aviation Regulations Part 23 – *Airworthiness Standards: Normal, Utility, Acrobatic and Commuter Category Airplanes*, CASA talking about their recent rule changes, and Graham Murphy, a long standing design delegation holder, sharing some of his accumulated wisdom.

Leslie MacIntosh, CAA's Chief Legal Counsel, took some time to emphasise the importance of the delegation powers the CAA entrusts to design delegation holders, and what that delegation means in legal terms.

There was also a chance for design delegation holders to give the CAA some feedback on recent changes. Since 2010, major design changes must be carried out under an STC (supplementary type certificate) unless specific authority is given by the CAA to approve work as a major design change.

One recent example of a design change is the outfit of a Jetstream 31 for aeromedical use. This was undertaken by Flight Structures Ltd of Hamilton, and carried out under a pre-authorised major design change. Flight Structures carry out approximately 20 major design changes a year, work ranging from external storage for helicopters to cabin reconfigurations for aeromedical use.

This two-month long project included approving and installing stretcher bases, designing and manufacturing crew seats for medical staff, which could be installed both rearward and forward facing, and certificating a backup battery supply system to run the medical equipment and associated communication system separately from the aircraft. ■

A completed J31 air ambulance interior by Flight Structures.
Photo by Mark Tantrum, courtesy of Life Flight Trust.

GA Flight Examiner Seminar

The next General Aviation Flight Examiner Seminar will be held in Wellington on 16 and 17 August 2012, at the CAA, Level 15 Asteron Centre, 55 Featherston St.

These biennial seminars, which were started in 2005, are an opportunity for GA Flight Examiners to keep up to date with the latest developments in the field, and to meet and network with other GA examiners from around the country.

Seminar organiser, Flight Testing Officer John Parker, says, "General Aviation Flight Examiners are the gatekeepers of flight training standards, and ultimately influence the standing of the New Zealand licence internationally. The CAA recognises that it is vital to provide the opportunity for these examiners to come together to discuss training issues."

The 2012 seminar will include extensive discussion on:

» CPL flight test
» ATPL (H) flight test
» B-Cat Issue
» Improving candidate performance, and
» Common frequency zones.

The seminar will also include presentations on:

» Safety Management Systems (SMS)
» Part 115 examiner privileges
» Medical flight tests.

This seminar is partly sponsored by the aviation industry.

Register early, as places are limited. The cost per participant is $200.

For more information and updates, see the CAA web site, www.caa.govt.nz, "Seminars and Courses". ■

Feedback on **Flight Training Review Sought**

Here is a chance to have a hand in shaping the future of flight training in New Zealand.

The CAA is seeking feedback from the aviation industry on Aerosafe Risk Management's independent review of the New Zealand flight training industry. The review, which the CAA commissioned in 2011, is part of a dedicated effort to understand and resolve concerns about safety performance in the flight training sector.

The CAA's Personnel and Flight Training Manager, John McKinlay, says, "Commissioning of the Aerosafe review was only the first step – it identified issues from CAA's database. The next step is to seek the view of all stakeholders on how we can collectively improve safety performance. The feedback received will be considered in light of the information reported in the Aerosafe review, and will also be useful during the next stage which is to develop a risk profile for the flight training sector. This stage will involve working more closely with the flight training sector".

The Aerosafe report includes a detailed description of the changes in New Zealand's flight training sector since 2000, its dramatic growth, and the work done by the CAA and the aviation industry in response. The Aerosafe report also confirms issues identified by the CAA in its Statement of Intent 2011–2014. All this information is available on the CAA web site, www.caa.govt.nz, "Pilots – Flight Training Review".

Some of the Aerosafe report recommendations to the CAA are that the CAA consider further strengthening rule and examination requirements, bolster its analysis of flight training safety data, and decrease the complexity of some airspace.

Submissions should be made to John McKinlay before the closing date of 29 June 2012.

Email: John.McKinlay@caa.govt.nz, Tel: 04 560 9627. ■

Arrivals Manager for Auckland

Meet Airways' new product, the Arrivals Manager (AMAN), that is scheduled to make an entry into Auckland airport later this year. It's a world-first in New Zealand, and will make air traffic flows more efficient and reduce fuel usage.

AMAN is an arrivals management system that manages traffic scheduling and sequencing, and is an extension of Airways' current CAM (Collaborative Arrivals Manager) system.

Russell Akehurst, Airways' Enroute Services Manager – Main Trunk, says AMAN has been in the works from 2008.

"Now, we're the first to have a CAM-type system fully integrated with an AMAN product to such a degree," Russell says.

How it Works

AMAN is a software package that has been adapted specifically for New Zealand conditions and integrated with the existing CAM and air traffic management (ATM) systems.

Currently, CAM is available at Auckland, Christchurch, Wellington, and Queenstown airports, and provides calculated departure time to crews to regulate traffic into manageable 'bunches'. Up until now, these bunches have been manually sequenced by air traffic control in the terminal airspace, generally at relatively low level (high fuel burn phase of flight) and close to destination.

Once operational, AMAN will automatically determine the arrival sequence prior to the flights' top of descent, and then regulate the flight sequence by allocating a specific time at an enroute location that each aircraft much reach. Put simply, AMAN will start to stream each bunch of flights into a smooth traffic flow before the flights enter terminal airspace.

AMAN determines the sequence and spacing between flights after allowing for variable factors, such as weather and arrival procedure to be flown.

"From an air traffic controller perspective, this means that instead of having clumps of traffic to manage, the job will become more of managing the predetermined sequence. This arrival flow management will reduce congestion and fuel burn in the descent and approach phases," says Russell.

AMAN information will appear as an add-on in a timeline on the controllers' ATM screens.

So what does this mean for air crew? Russell says, "AMAN provides the arrival sequence information to crews approximately 40 minutes before arrival. It reduces arrival holding, and helps avoid excessive speed changes in the terminal airspace. An individual pilot normally will not be as aware of their position in the sequence relative to other arrivals on the same track, only because the whole bunch is being sequenced globally by AMAN. This more global approach to traffic sequencing is the key advantage that AMAN will provide."

AMAN may be introduced to other airports around New Zealand at a later stage in response to customer needs.

Training

Airways has put a generic computer-based training package together. This package can be used by controllers and air crews and gives an overview of how the whole system works from both perspectives.

For more information, contact Airways' Main Trunk Services Manager, Paul Fallow, email: paul.fallow@airways.co.nz. ■

Participation Levy and Registration Fee

If you are an aircraft owner, it's almost that time of the year when you get the reminder from the CAA for payment of the annual registration fee and participation levy.

All aircraft on the New Zealand Aircraft Register, whether airworthy or not, are considered participants in the New Zealand civil aviation system. The civil aviation system is based on the structures, rules, information, safety and security oversight, and the provisions for safe airspace and safe aircraft operations, that the CAA provides.

The registration fees and participation levy support CAA activities, and enable services such as safety investigation and analysis, safety education and information, and regulatory enforcement. The registration fees contribute to the maintenance of aircraft data on the Register.

As long as your aircraft is on the New Zealand Register, you are obliged to pay the annual participation levy and the registration fee.

The participation levy amount is based on aircraft weight. The registration fee is a simple per-aircraft fee regardless of type or weight.

This cost recovery approach has been in place for many years now, and was originally determined through consultation with the wider aviation community.

Who Pays?

The CAA sends the annual registration and participation fee invoice to the registered owner who is responsible for the timely payment of the registration fee and the participation levy. The registered owner is the person or the company who has lawful possession of the aircraft for 28 days or more and whose name is on the aircraft certificate of registration – this may be different from the person or company who has financial or legal ownership.

If the annual registration and participation levy is not paid, the aircraft will be deregistered and the airworthiness certificate revoked.

Change of Ownership

If you are buying a registered aircraft, or if you have sold your aircraft, the CAA must be notified of change of ownership within 14 days. The buyer should also check that the levies and fees due have been paid.

For change of possession, the seller and the buyer must both complete and send completed form 24047/3, and the change fee, to the CAA. All forms are available on the CAA web site, www.caa.govt.nz, "Forms".

You commit an offence if you operate an aircraft without a valid Certificate of Registration (under Section 46 of the Civil Aviation Act 1990).

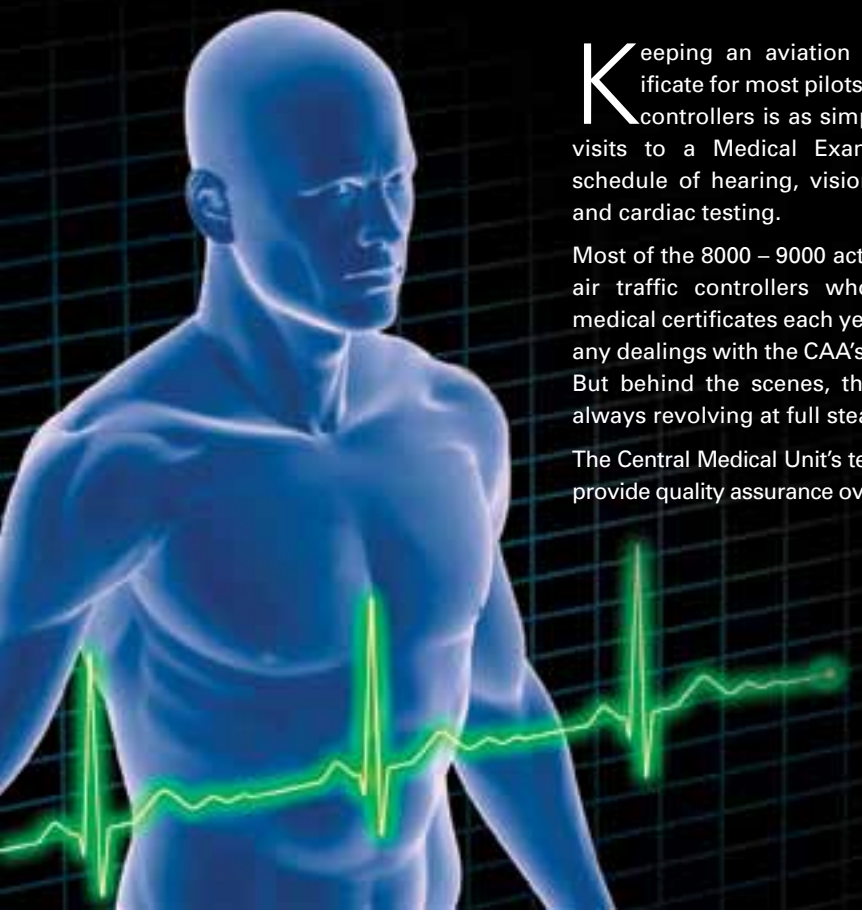
For more information on the responsibilities of the registered owner, refer to rule 47.51 *Requirement for aircraft registration and certificate*, or view the CAA web site, "Aircraft – Change of Possession".

Aircraft Not in Use

You may want to deregister your aircraft if it is not airworthy or is not being used (use form 24047/5). You must notify the CAA within 90 days of the original invoice date. The registration mark can be reserved for a fee. Once deregistered, the aircraft airworthiness certificate is revoked. It pays to weigh this up against the cost of a new registration and airworthiness certificate, which will be required when you want to fly the aircraft again. ■

Medically Speaking

Your flying future depends on being able to keep a medical certificate.



Keeping an aviation medical certificate for most pilots and air traffic controllers is as simple as regular visits to a Medical Examiner, and a schedule of hearing, vision, respiratory and cardiac testing.

Most of the 8000 – 9000 active pilots and air traffic controllers who are issued medical certificates each year never have any dealings with the CAA's medical unit. But behind the scenes, the wheels are always revolving at full steam.

The Central Medical Unit's team of 10 staff provide quality assurance over the medical certification system. This entails providing aviation medical advice to the Director of Civil Aviation and the Ministry of Transport, developing medical policies, assessing appeals, and answering ministerial inquires. They make clinical and regulatory decisions about individuals' medical privileges and are responsible for all aviation medical records.

They liaise closely with medical examiners on medical certification issues, monitor medical examiners' decisions to ensure ongoing compliance, and provide regulatory training.

The unit's clinical staff stay abreast of international aviation medical developments and maintain links with professional medical bodies, and overseas medical regulators.

The unit runs a helpdesk at med@caa.govt.nz, and provides a library of information, help and advice on the CAA web site, www.caa.govt.nz, look under "Medical" on the home page. ■

Image: ©istock.com/angelhell

Nominations for 2012 Director's Awards and Flight Instructor Award

Every year, the Director's Awards and Flight Instructor Award provide the aviation community with an opportunity to reward those who have made a substantial difference to aviation safety. The awardees are recognised for their actions that have been responsible for increasing safety awareness and that have also been examples for others to follow.

The Director of Civil Aviation is now calling for nominations for this year's Director's Awards, and Flight Instructor Award. These awards are presented to an individual, an organisation, and a flight instructor with an overwhelming safety ethos.

Make sure those who have made this valuable contribution are acknowledged by nominating them for these awards. Send in a few paragraphs on why your nominee should be considered, to the CAA's Manager Safety Promotion, Bill Sommer.

Email: Bill.Sommer@caa.govt.nz
Fax: +64 4 569 2024
Post: PO Box 3555, Wellington 6140

The last date for nominations is 25 June 2012.

This year, the awards will be presented to the winners at the Aviation Industry Association annual awards dinner, to be held on 9 August, in Rotorua. ■

The Director's Awards for an organisation (pictured) and an individual, began in 1995, and the CAA Flight Instructor Award in 2005.

Roadsign: ©istock.com/Dizzle52

Circuit Changes

In response to a Transport Accident Investigation Commission (TAIC) recommendation, the Director of Civil Aviation undertook to make aerodrome operators aware of the risks of using simultaneous opposed circuits at aerodromes and their need to develop appropriate local procedures to minimise the risk of mid-air collisions.

One such aerodrome was Dannevirke, and the CAA's Aeronautical Services Unit and Aviation Safety Advisers worked with the aerodrome operator, providing them with a risk assessment tool to determine whether opposing circuits for fixed-wing and helicopter traffic was justifiable. The operator determined that the risk outweighed the need, and consequently the right-hand circuits that applied to some runways will no longer exist.

From 31 May 2012, all Dannevirke circuits will be left-hand. A new *AIP New Zealand* aerodrome chart (NZDV AD 2 – 51.1) becomes effective on that date – ensure that you have an up-to-date version before you drop in. ■

National Airspace and **Air Navigation Plan Update**

Work on the elements of the National Airspace and Air Navigation Plan is now under way. Task groups involving the CAA and a range of industry stakeholders have begun developing sub-plans in eight technical areas: airspace; air traffic management; communications; navigation; surveillance; aeronautical information; meteorological information; and aerodromes.

Each area of work will also consider implications such as aircraft, licensing and training requirements, as well as regulatory requirements. The task groups will also take into account international plans, especially those of ICAO.

The task groups are expected to complete their work by the end of June 2012. The next steps will involve combining the task groups' output into the full National Plan.

More information

CAA web site, www.caa.govt.nz, "National Airspace and Air Navigation Plan"

Contact CAA Senior Policy Adviser Shannon Scott, email: Shannon.scott@caa.govt.nz.

Vector article, January/February 2012, page 22. ■

The National Fieldays site at Mystery Creek, showing its proximity to Hamilton Airport. Image supplied by National Fieldays Society.

New **Hamilton CTR Sector**

To accommodate the intensive helicopter traffic associated with the National Agricultural Fieldays in June, a sector of the Hamilton control zone has been designated the 'Fieldays Sector'. The Fieldays site is at Mystery Creek, 0.8 NM east of Hamilton aerodrome.

Dimensions and procedures are published in *AIP Supplement* 85/12, effective 31 May 2012. Users will notice a difference in the airspace designation this year – while the dimensions are the same as before, it is now a control zone sector rather than a general aviation area (GAA), and specific procedures will apply. Clearance to enter and operate within the sector must be obtained from Hamilton Tower before entry, and before liftoff from Mystery Creek respectively. Check the *AIP Supplement* for full details; you can view it online, www.aip.net.nz. ■

How to Get Aviation Publications

AIP New Zealand

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

Pilot and Aircraft Logbooks

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

Rules, Advisory Circulars (ACs), Airworthiness Directives

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

Planning an Aviation Event?

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

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

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

CAA Cut-off Date	*Airways Cut-off Date*	*Effective Date*
11 Jun 2012	18 Jun 2012	23 Aug 2012
9 Jul 2012	16 Jul 2012	20 Sep 2012
6 Aug 2012	13 Aug 2012	18 Oct 2012

See **www.caa.govt.nz/aip** to view the *AIP* cut-off dates for 2012.

Aviation Safety Advisers

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

Don Waters (North Island)
Tel: +64 7 376 9342
Fax: +64 7 376 9350
Mobile: +64 27 485 2096
Email: Don.Waters@caa.govt.nz

Murray Fowler (South Island)
Tel: +64 3 349 8687
Fax: +64 3 349 5851
Mobile: +64 27 485 2098
Email: Murray.Fowler@caa.govt.nz

John Keyzer (Maintenance, North Island)
Tel: +64 9 267 8063
Fax: +64 9 267 8063
Mobile: +64 27 213 0507
Email: John.Keyzer@caa.govt.nz

Bob Jelley (Maintenance, South Island)
Tel: +64 3 322 6388
Fax: +64 3 322 6379
Mobile: +64 27 285 2022
Email: Bob.Jelley@caa.govt.nz

Aviation Safety & Security Concerns

Available office hours (voicemail after hours).

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

For all aviation-related safety and security concerns

Accident Notification

24-hour 7-day toll-free telephone

0508 ACCIDENT
(0508 222 433)
www.caa.govt.nz/report

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

Accident Briefs

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

ZK-GJO PZL-Swidnik PW-5 'Smyk'

Date and Time:	11-Feb-08 at 18:00
Location:	Waharoa
POB:	1
Injuries (Fatal):	1
Damage:	Destroyed
Nature of flight:	Private Other
Age:	51 yrs
Flying Hours (Total):	1283
Flying Hours (on Type):	678
Last 90 Days:	63

The pilot was competing in the New Zealand National Gliding Championships. During the last stage of a competition flight, one mile from Matamata Aerodrome, the glider was seen to turn steeply to the left and descend out of sight behind a stand of trees. A short time later, rescue personnel found the glider, which had been destroyed by ground impact, and the pilot deceased.

A CAA field investigation determined that the pilot was probably influenced by the pressures of competition and lost control of the glider during a downwind low level turn while trying to gain additional height.

A full report is available on the CAA web site.

CAA Occurrence Ref 08/497

ZK-GPC PZL-Bielsko SZD-50-3 Puchacz

Date and Time:	25-Jul-08 at 14:00
Location:	Matamata
POB:	2
Injuries:	0
Damage:	Substantial
Nature of flight:	Training Dual
Flying Hours (Total):	1770
Flying Hours (on Type):	220
Last 90 Days:	1

During a winch launch, the pilot felt less acceleration compared to previous launches, but sufficient airspeed was gained to become airborne. The pilot radioed the winch driver to increase speed. With no immediate response, the launch was abandoned. A rapid sink rate occurred due to a nose-high attitude and low airspeed. Forward elevator control was applied, levelling the aircraft. A heavy landing occurred on both the main wheel and tailskid. The heavy landing was sufficient to cause downward wing deflection, dislodging the left wing aileron control rod connection and locking all movement to both ailerons. The cause was attributed to the pilot's failure to monitor the aircraft attitude immediately following aborting the launch.

CAA Occurrence Ref 08/3412

ZK-WMT Thorp S-18

Date and Time:	26-Apr-08 at 16:30
Location:	Whenuapai
POB:	2
Injuries (Fatal):	2
Damage:	Destroyed
Nature of flight:	Private Other
Pilot Licence:	Private Pilot Licence (Aeroplane)
Age:	62 yrs
Flying Hours (Total):	745
Flying Hours (on Type):	501
Last 90 Days:	80

The aeroplane was on the downwind leg for Runway 28 at Whenuapai, when it banked suddenly to the right and descended rapidly to the ground, catching fire immediately on impact. The pilot and passenger were fatally injured.

A full report is available on the CAA web site.

CAA Occurrence Ref 08/1753

ZK-HXR Robinson R22 Alpha

Date and Time:	01-Nov-08 at 20:14
Location:	Lake Wanaka
POB:	1
Injuries (Fatal):	1
Damage:	Destroyed
Nature of flight:	Ferry/Positioning
Pilot Licence:	Commercial Pilot Licence (Helicopter)
Age:	31 yrs
Flying Hours (Total):	6015
Last 90 Days:	90

The helicopter was reported overdue on a flight from Haast to Wanaka. An aerial and surface search was commenced by local operators, during which some items from the helicopter were sighted and retrieved from the surface of Lake Wanaka. Four days later, the wreckage of the helicopter, which contained the pilot's body, was located and recovered from the lake.

The Transport Accident Investigation Commission (TAIC) investigation concluded that a mast bump had occurred during cruise flight, resulting in a catastrophic loss of control, followed by a main rotor blade striking the cabin and fatally injuring the pilot. The mast bump was likely to have been caused by the helicopter encountering a low-G condition, perhaps in turbulence.

Refer to TAIC report 08-007 for further details.

CAA Occurrence Ref 08/4608

ZK-HWI Bell 206B

Date and Time:	02-Aug-08 at 11:30
Location:	Leaning Rock
POB:	3
Injuries:	0
Damage:	Substantial
Nature of flight:	Transport Passenger A to B
Pilot Licence:	CPL (Helicopter)
Age:	34 yrs
Flying Hours (Total):	3800
Last 90 Days:	96

The pilot encountered flat light conditions while positioning for a recce of a landing site. During deceleration, a rate of descent developed that could not be countered before the aircraft struck the ground. Right drift at touchdown, and the right skid catching a hidden fence wire, caused dynamic rollover of the helicopter onto its right side.

CAA Occurrence Ref 08/3218

ZK-EGK NZ Aerospace FU24-950

Date and Time:	20-Aug-08 at 14:55
Location:	Taranaki
POB:	1
Injuries:	0
Damage:	Minor
Nature of flight:	Agricultural
Pilot Licence:	CPL (Aeroplane)
Age:	66 yrs
Flying Hours (Total):	22703
Flying Hours (on Type):	13177
Last 90 Days:	18

The aircraft developed a minor problem that resulted in a forced landing in a Taranaki field. The nosewheel collapsed and the prop touched, causing minor damage to the aircraft. An engineer reported that RH magneto S/N A84640 was non-operative through water contamination; the capacitor had failed, and the points had no gap. Advanced corrosion inside the magneto indicated that water contamination had been present for some time. In addition, a significant amount of water was found in the fuel tanks and in the fuel system sump tank.

CAA Occurrence Ref 08/3556

ZK-BWK Cessna 180

Date and Time:	13-Sep-08 at 15:00
Location:	Pyke River
POB:	1
Injuries:	0
Damage:	Substantial
Nature of flight:	Private Other
Pilot Licence:	PPL (Aeroplane)
Age:	36 yrs

The pilot was landing on a remote river bed when he used a bit too much braking action and the aircraft nosed over onto its propeller. The aircraft was airlifted out to a maintenance facility for the required engine inspection.

CAA Occurrence Ref 08/3895

ZK-IXL Robinson R44

Date and Time:	10-Aug-08 at 14:50
Location:	Pongaroa
POB:	1
Injuries:	0
Damage:	Destroyed
Nature of flight:	Agricultural
Pilot Licence:	Commercial Pilot Licence (Helicopter)
Age:	32 yrs
Flying Hours (Total):	2936
Flying Hours (on Type):	1711
Last 90 Days:	226

The helicopter was being used to apply product in the form of a slurry. The density of the slurry was reportedly underestimated, resulting in the helicopter being operated at or above the maximum takeoff weight. A loss of rotor RPM occurred on lift-off from the loading area.

The pilot attempted to restore the RPM by making a diving turn to gain airspeed and performance. He also attempted to jettison the load, but because of unfamiliarity with this particular machine, he was unable to locate the jettison button before contacting the ground and adjacent power lines. The helicopter was destroyed but the pilot escaped uninjured.

CAA Occurrence Ref 08/3336

ZK-ELH Cessna 172N

Date and Time:	27-Oct-08 at 10:00
Location:	Pukekohe East
POB:	1
Injuries:	0
Damage:	Substantial
Nature of flight:	Private Other
Pilot Licence:	PPL (Aeroplane)
Age:	64 yrs
Flying Hours (Total):	290
Flying Hours (on Type):	61
Last 90 Days:	2

The aircraft encountered an unexpected tailwind gust just before the landing flare. This caused the aircraft to float two thirds of the way down the strip, before touching down. The pilot applied heavy braking but due to the wet grass surface, braking action was poor. The aircraft collided with trees and a water tank on the side of the strip, coming to rest in a fence. The aircraft suffered substantial damage to both wings and wing attachment points.

CAA Occurrence Ref 08/4520

Accident Briefs continued from previous page...

ZK-DXS Cessna 177RG

Date and Time:	05-Sep-08 at 12:50
Location:	Fox Glacier
POB:	3
Injuries (Serious):	2
Injuries (Minor):	1
Damage:	Substantial
Nature of flight:	Private Other
Pilot Licence:	Private Pilot Licence (Aeroplane)
Age:	48 yrs
Flying Hours (Total):	160
Flying Hours (on Type):	64
Last 90 Days:	25

The pilot misdentified his intended point of landing (Franz Josef Aerodrome) and made an approach to land at Fox Glacier airstrip.

On short final, he was distracted by stock and commenced a missed approach towards rising terrain. During a turn away from high ground, the aircraft struck power lines before crashing in a native bush reserve.

CAA Occurrence Ref 08/3776

ZK-ZIO Cessna T210M

Date and Time:	25-Dec-08 at 11:58
Location:	Uretiti Beach
POB:	1
Injuries:	0
Damage:	Destroyed
Nature of flight:	Private Other
Pilot Licence:	Private Pilot Licence (Aeroplane)
Age:	52 yrs
Flying Hours (Total):	347
Flying Hours (on Type):	6
Last 90 Days:	6

The pilot reduced the power setting for descent from the cruise when the engine suddenly lost power with oil spraying on the windscreen. Smoke and fumes were also present in the cockpit. The pilot carried out a successful ditching approximately 200 m off Uretiti Beach, South of Ruakaka. He vacated the aircraft before it sank and was helped ashore by onlookers.

The aircraft was recovered and the engine sent to an overhaul facility for teardown under CAA supervision. Maintenance investigation determined that the number 6 cylinder conrod had failed approximately 75mm below the small end. The flailing portion of the rod connected to the crankshaft had caused major damage inside the engine crankcase.

The cause of the conrod failure could not be positively identified due to the damaged sustained to the end of the conrod. However the two most likely causes are:

1. A small indentation on the conrod shank caused through improper conrod handling during a cylinder change. This may have led to a fatigue crack and subsequent rod failure, or
2. A surface defect in the conrod shank caused by internal corrosion which led to a fatigue failure.

When stripped down, the engine exhibited signs of internal corrosion not attributable to salt water immersion. The aircraft had not flown for three years prior to being imported into New Zealand. It is suspected that this and other low utilisation led to the internal corrosion that was found.

CAA Occurrence Ref 08/5342

ZK-HBD Aerospatiale AS 350BA

Date and Time:	23-Sep-10 at 17:05
Location:	Nokomai
POB:	0
Damage:	Substantial
Nature of flight:	Other aerial work
Pilot Licence:	Commercial Pilot Licence (Helicopter)
Age:	36 yrs

The pilot landed at a high alpine hut to retrieve some gear. The landing area had a snow covering across it, with patches of tussock showing. It was an area the pilot had landed in many times before. As it was only going to be a brief pick up, the helicopter was left running at ground idle. The pilot disembarked from the helicopter and gathered the first load of gear from the hut, then went and retrieved the second load of gear. As he walked back towards the helicopter with the second load, one skid broke through the snow into an unseen hollow. The helicopter rocked backwards, it then started to roll to the left, with the main rotor blades contacting the ground before coming to rest back in an upright position. The main rotor blades and aircraft fuselage received substantial damage.

CAA Occurrence Ref 10/3680

ZK-FXE Britten-Norman BN2A-26

Date and Time:	13-Nov-10 at 16:15
Location:	Stewart Island
POB:	10
Injuries:	0
Damage:	Substantial
Nature of flight:	Transport Passenger A to B
Pilot Licence:	Commercial Pilot Licence (Aeroplane)
Age:	25 yrs
Flying Hours (Total):	2192
Flying Hours (on Type):	688
Last 90 Days:	72

While landing at Stewart Island, severe unexpected wind shear was encountered, resulting in a heavy landing. On checking the aircraft after landing, the pilot did not notice any obvious signs of damage. He flew the aircraft back to Invercargill and after landing, the maintenance controller was advised. On inspection, the top and bottom wing skins were found deformed inboard of the left engine and undercarriage attachment. This resulted in the unserviceability of the aircraft until the damage could be rectified.

CAA Occurrence Ref 10/4641

GA Defects

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

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

Alpha R2160

Engine

ATA Chapter:	7200

After takeoff, while climbing through 200 to 300 feet, a significant loss of engine power was experienced with a notable drop in RPM; the RPM was restored after a few seconds. A low-level circuit was flown at 500 feet and the aircraft returned to land. Extensive maintenance investigation failed to find any reason for the partial engine power loss. After the maintenance investigation was completed, the aircraft was flown on a number of flights by experienced pilots, the partial power loss did not recur. The aircraft was then released for general use by aero club pilots.

CAA Occurrence Ref 11/2398

Cessna 172S

Aileron balance cable

Part Manufacturer:	Cessna
Part Number:	0510105-265
ATA Chapter:	2711
TSI hours:	50

During scheduled maintenance, the right aileron balance cable was found to be badly frayed. The intention was to replace the cable due to cable wear trends seen within the flap bay area at the previous inspection 50 hours earlier, but this cable had deteriorated faster than expected.

CAA Occurrence Ref 11/3041

Cessna U206C

Cylinders

Part Manufacturer:	Engine Components
Part Number:	AEC631397ST.71.1
ATA Chapter:	7170
TSI hours:	100
TTIS hours:	465.1

During a scheduled inspection, cylinders were found to be cracked. The manufacturer was advised, but no response has been received yet. New cylinders were installed. The operator commented that several other of these cylinders have cracked long before the TBO.

CAA Occurrence Ref 11/2480

Diamond DA 42

Engine fire sensor

Part Number:	D60-9026-16-03
ATA Chapter:	2611

During climb the left engine fire indicator illuminated for two seconds, then extinguished. Fifteen seconds later, the indicator illuminated for a second time and stayed on. The left engine was shut down and the aircraft returned to base. Inspection of the engine found no evidence of fire, overheating or fuel leakage. The fire detector was tested in accordance with the aircraft maintenance manual and was found to be unserviceable. The unservicible unit was replaced with a new fire detector and additional testing showed the new detector was satisfactory.

CAA Occurrence Ref 11/4198

Gippsland GA200C

Fuel pump

Part Manufacturer:	Hartzell Engine Technologies
Part Number:	RG17950 D/M
ATA Chapter:	7310

Pre-flight inspection revealed fuel leakage from the fuel pump drain. The fuel pump was removed and the diaphragm was sent to Hartzell Engine Technologies for investigation. Hartzell found that the rubber gasket which forms part of the diaphragm was cracked, which allowed fuel to leak at the diaphragm to shaft interface. Hartzell was unable to determine a root cause for the cracking and have not seen this defect on any other pump returns. They are treating this as an isolated occurrence at present.

CAA Occurrence Ref 11/4303

Piper PA-23-250

Down lock

Part Manufacturer:	Piper Aircraft Company
Part Number:	487-312
ATA Chapter:	3230
TTIS hours:	8203

The left-hand landing gear would not fully lock down when extended. One of the four downlock latch assist springs had broken, lodging in the downlock and preventing the last 1 mm of movement of the overcentre mechanism. The operator's maintainer reported that the springs do not wear as such, but occasionally break due to metal fatigue. This is the first time a broken spring has ended up stuck in the drag brace. The brace was still overcentre and could not have folded. It was about 1 mm from the full overcentre position, being the thickness of the spring wire. A check of the springs is performed on each service.

CAA Occurrence Ref 11/2773

AV KIWI

SAFETY SEMINARS

CAA

CIVIL AVIATION AUTHORITY OF NEW ZEALAND

Te Mana Rererangi Tūmatanui o Aotearoa

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Our presenters are Jim Rankin, RNZAF Instructor, and Carlton Campbell, CAA Training Standards Development Officer – collectively they have 80+ years' experience in practising and teaching RTF.

Here are the last venues and dates for 2012. You can also see seminar information on the CAA web site, www.caa.govt.nz, see "Seminars and Courses".

Kerikeri Aerodrome
Friday 22 June, 7:00 pm
Bay of Islands Aero Club

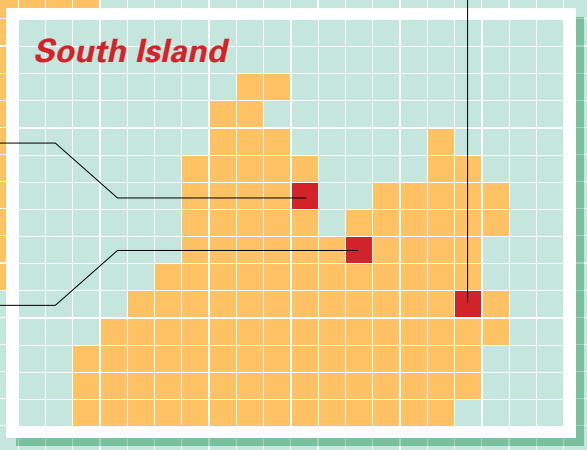
Whangarei Aerodrome
Thursday 21 June, 7:00 pm
Recreational Flying Club

Ardmore Aerodrome
Tuesday 19 June, 11:00 am
ATC Hall
Tuesday 19 June, 7:00 pm
Auckland Aero Club

North Shore Aerodrome
Wednesday 20 June, 7:00 pm
North Shore Aero Club

Hamilton Aerodrome
Sunday 17 June, 5:00 pm
CTC Aviation Training, 131 Boyd Road
Followed by pizza and soft drink
Monday 18 June, 7:00 pm
Waikato Aero Club

Omaka Aerodrome (Blenheim)
Monday 28 May, 7:00 pm
Marlborough Aero Club



Motueka Aerodrome
Wednesday 30 May, 10:00 am
Nelson Aviation College

Nelson Aerodrome
Tuesday 29 May, 7:00 pm
Nelson Aero Club