

POINTING TO SAFER AVIATION

vector

March / April 2012



Revision to Cessna Service Manuals

To Be a Senior Person

Buying a Second-hand Aircraft Overseas

Surveillance Process Developments

To Be a Senior Person

In wanting to be a Senior Person, do you have the 'right stuff', do you know what it takes to be one, do you understand what it could demand of you, and are you prepared to make the commitment to enhance safety?

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Buying a Second-hand Aircraft Overseas

It can mean more choices and happier customers. But you do need to get it right first time. Here are a few pointers on how to.

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Revision to Cessna Service Manuals

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- » you will get a comprehensive safety manual;
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Wellington

Thursday 7 and Friday 8 June 2012

Brentwood Hotel
16 Kemp St
Kilbirnie
Wellington

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

Amateur-built Aircraft

Kiwis are renowned 'do-it-yourselfers', and this is clearly evident in the field of aircraft construction. You only have to walk among the lines of aircraft at a Sport Aircraft Association (SAANZ) fly-in, to be struck by the standard of finish and the meticulous care that has gone into the building of these aircraft. On the New Zealand register, there are currently 312 amateur-built aircraft, comprising 285 aeroplanes, 22 helicopters, and 5 gliders. Some of these will have been built from scratch, with a set of plans as the starting point, while others will have been assembled from kits.

Whatever the construction route, the final steps to getting your aircraft into the air will be the same. The initial issue of a *special category* – *amateur-built* airworthiness certificate requires, among other things (see rule 21.197), the approval of a maintenance programme in accordance with rule 91.607.

Then, at the *beginning* of the maintenance programme – that is, before your aircraft flies – it must be inspected in accordance with rule 43.303 (1), for "any defect or configuration anomalies which would be unlikely to be detected



by (subsequent inspections in accordance with the maintenance programme)". There is, however, more to this step than just presenting your aircraft as a *fait accompli*, expecting it to be signed out.

Bob Jelley, a CAA Aviation Safety Adviser, and himself an accomplished aircraft constructor, strongly suggests that, because stage inspections are no longer mandated, anyone intending to build their own aircraft should seek assistance or guidance at the earliest possible opportunity. Sources include the SAANZ itself, some members of which act as voluntary mentors; constructor Internet groups and web sites; and especially the actual certifying LAME or maintenance approval holder. Most importantly, the CAA Aircraft Certification Unit must be notified by

Form CAA2188 *Notice of Intention to Construct an Amateur-Built Aircraft*.

This will have clear benefits, in that the person performing the inspection will have confidence in the construction methods and standards of workmanship, especially in the areas that are no longer accessible after having been closed in. In particular, adherence to plans, materials of the correct quality and specification, integrity of glued or welded joints, electrical wiring, and hydraulic or pneumatic plumbing can all be verified while still exposed to view.

"This will go a long way toward ensuring that there are no unwanted surprises at the end of the construction of the builder's pride and joy," says Bob. ■

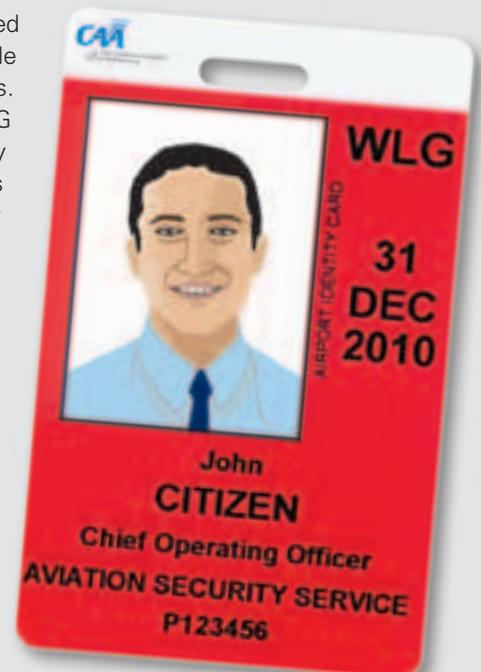
New-Look Airport ID Cards

From 1 May 2012, new format airport identity cards will start to make an appearance, but there is no requirement to rush out and get a new card – your current one will remain valid until its original expiry date. The updated cards will be issued to new applicants, and to current holders whose cards are about to expire.

The most noticeable difference is a larger photo with no background colour for ease of recognition of the holder of the airport identity card. The former background colour to the the holder's photograph will now be the background colour for the entire card outside the photo.

A closer look will reveal new enhanced security features designed to enable detection of attempted forgeries. Additionally, the airport code (eg, WLG for Wellington) will be prominently displayed, to indicate the holder's 'home' airport. In the case of a holder such as an aircrew member or CAA auditor needing access at multiple airports, the code displayed will be NZL. The 'home' airport code is designed to reduce the possibility of card misuse.

There are no changes to the rules requirements for the use of the cards. ■



For Chief Executive Air Operator Security Occurrence Investigation
A Senior Person (Title of appointment _____)

Legal Name of Organisation _____

To Be a Senior Person

So you want to be a senior person. Well, do you have the 'right stuff', do you know what it takes to be one, do you understand what it could demand of you, and are you prepared to make the commitment to enhance safety?

If you know you don't, or even if you think you do, then read on.

The Person

The January/February 2012 issue of *Vector* has a *Senior Persons* article that discusses their importance, who they are, what they do, preparation and certification.

In that article Mark Hughes, CAA General Manager Airlines, emphasised the importance of the role. Among other things he said that senior persons must understand human factors and strike the right balance between managing human error and holding individuals to account, and create a positive organisational culture.

"Organisations have a strong responsibility to put the right people forward, those who have the right material to be a senior person," Mark says.

With those thoughts in mind, organisations need to ensure that their senior person candidates have the right experience, skills, knowledge and qualifications (where applicable) and have a positive attitude toward safety and compliance.

The nominated senior people must be natural persons (not a body corporate) and must be employed, contracted or otherwise engaged to work sufficient hours so that the individual can fulfil the senior person functions associated with the size and scope of the organisation's business.

The Civil Aviation Act requires the Director to be satisfied that the applicant is a 'fit and proper person' for the role. To help establish this, the CAA will assess each nominated person and interview them to establish their competence to perform their designated roles and to ensure the continued safety of the operation.

The candidate must, among other things, have an in-depth knowledge of the company exposition, a good working knowledge of the applicable rules and ACs, a clear understanding of their role and responsibilities, and a positive attitude to safety.

CAA Interview

In particular the CAA will gather information and explore the following areas during its recorded interview process, which will take about 90 minutes.

Following an initial review and discussion of the applicant's qualifications and experience, the candidate will be expected to be able to:

- » Describe how their experience and skills are relevant and applicable to the intended position
- » Give an accurate overview of their intended role
- » Explain their knowledge of the organisation, its activities and its exposition
- » Tell about their knowledge of the intended duties, their responsibilities and accountabilities and position description, and the extent of their authority to make decisions, including any financial authority
- » Explain what resources are available to them to fulfil their role
- » Describe the time they will dedicate to the role, and how any other commitments that could interfere with the exercise of their responsibility will be managed
- » Explain where they will be living in relation to the organisation's location, and whether this could impact on their ability to perform in the role
- » Demonstrate their knowledge of the applicable Act, Rule and AC requirements, and describe how the various sections apply to their intended position
- » Tell of their knowledge of applicable standards and best practices
- » Explain and demonstrate their attitude toward compliance and safety by their understanding of safety and risk, and how they intend to achieve good safety performance within their area of responsibilities
- » Describe how any potential conflicts of interest will be managed.

Usually within a few days, the CAA will review the outcome of the interview and complete any required follow up before providing the candidate with the results of its assessment. ■

Buying a Second-hand Aircraft Overseas

Buying a second-hand aircraft from overseas can mean more choices at competitive prices and satisfied customers. But it can also mean pitfalls for the unwary.

Be Savvy

If you are considering buying a second-hand aircraft from overseas, or in New Zealand, make sure you take the following steps to ensure you don't end up with a lemon.

Check the Aircraft Records

Knowing the history of an aircraft you would like to buy is essential. Get information on the title, previous ownership history and any reported accidents or incidents. These are valuable tools to have when making a purchasing decision.

A good, detailed and continuous maintenance history is the most important indicator that the aircraft has been well looked after. The maintenance records should be carefully checked, as damage history could often be hidden by sketchy logbook entries.

Do a Pre-purchase Inspection

Make sure you're aware of what you're buying. Take a LAME or tradesperson who has plenty of experience on all aspects of maintenance on the aircraft type along with you to conduct a pre-purchase inspection. At the very least, this inspection may provide you with negotiation information to lower the cost of the aircraft in return for any needed repair.

Get an Export C of A

The CAA always recommends getting an Export Certificate of Airworthiness (Export C of A), especially for an aircraft which has life limited components (such as helicopters). An Export C of A is the exporting country's statement that the aircraft conforms to its approved type design – it is a 'release note' for the whole aircraft.

David Gill, CAA's Team Leader Airworthiness, says, "The Export C of A is generally of great benefit to importers. As an example, a helicopter imported from Australia was found to have the incorrect variant of engine fitted. The delegate who issued the Export C of A recognised that he had not detected this error and arranged to

get a modification approved to cover the change.

"In another example, a helicopter imported into the country recently did not have any documentation covering the interior carpet. The owners were preparing to order a replacement. The CAA advised that the carpet appeared to be original and would be accepted because the helicopter had an Export C of A that certified it was in approved configuration.

"As a general rule, the CAA will give the applicant the benefit of any doubt when the aircraft is covered by a Statement of Conformity issued by the exporting national airworthiness authority.

"On rare occasions though (see "Not a Good Buy"), the Authority's represen-



tative doing the survey may not necessarily have had the 'maintenance on type' experience to have picked up some missing inspection requirements. That is why a thorough pre-purchase inspection is still a must," says David.

Title Search

The title search is also an important step to be taken before the aircraft is paid for. Title searches have been known to reveal old encumbrances that can be difficult to clear up. For example, if there are any payments pending on an aircraft, it won't be deregistered in the state of origin. And unless it is deregistered there, it cannot go on the New Zealand register.

A good way to start is to go to the regulator's web site (for example, FAA or CASA) and search for the aircraft registration mark. The FAA offers the facility to get a complete copy of the FAA file for any particular aircraft on CD through their website: <http://aircraft.faa.gov/e.gov/nd/>.

More Information

A complete pre-purchase inspection checklist by Brian Jacobsen is available at: www.avweb.com/news/usedacft/182803-1.html

The Handbook of Aeronautical Inspection by Denny Pollard.

The CAA web site, www.caa.govt.nz, "Aircraft". ■

Not a Good Buy

Hokitika pilot, Neale Gray, purchased and imported a Hughes 269B from Arkansas in the United States.

"The aircraft had come straight from Part 135 Certificated Operations, which meant it was being used on air transport. The advice I received from experienced industry persons in New Zealand indicated that it should be a good buy, as the assumption was that the aircraft should have been maintained in accordance with the previous operator's aircraft-specific maintenance programme."

An Export C of A was obtained. The aircraft was then shipped to New Zealand and sent to a maintainer in Christchurch to get the New Zealand airworthiness certificate and for any other general maintenance required.

The maintainer found that the helicopter main rotor transmission was an army aircraft transmission for a military TH-55A that had been installed on the H269B, and that it did not have a component history card.

Neale says, "Sikorsky, who owned the type certification for the Hughes

transmission, said the TH-55A transmission could be installed onto the H269B helicopter, provided a specified inspection had been carried out during installation.

"The maintainer was unable to determine if the inspection had been done, so the entire inspection had to be done on the assumption that the original inspection had not been performed.

"Further inspection also showed that the two-yearly regrease had not been performed in the United States. Worn out parts, such as the short shaft, adaptor plate, drive pulley and drive shaft, and four flapping hinge bearings in the rotor head, had to be replaced, at additional cost to me."

The aircraft is currently in the maintenance facility, in the process of becoming airworthy.

"It's been a big learning curve. I would recommend that anyone wanting to buy a second-hand aircraft overseas should get a 'type experienced' New Zealand LAME, or tradesman, to do a pre-purchase inspection – this expense is much less than what I am forking out to get the aircraft into an airworthy condition now," Neale says.

Photos: istock.com/madn61/ChristopherDodge/scannail





Low Approach and 'Overshoot'

An overshoot is a go-around, not an excuse for a beat-up.

Just because you have been cleared for a low approach and overshoot, it is not an authorisation to do a low fly-by down the runway as a demonstration of your superior flying skills to impress your mates.

An Example

In a recent example at an international aerodrome, the pilot of a light single-engine aeroplane with two passengers on board requested a low approach and overshoot to runway 23, and then to reposition for runway 05 and to remain in the circuit.

The aerodrome controller cleared the aircraft by responding, "cleared low approach and overshoot, reposition for 05." (Note: The correct RTF phraseology is "go-around", not "overshoot".)

The pilot flew a normal approach to just above the runway threshold, but instead

of overshooting and climbing away as expected, he flew along the entire length of the runway at high speed at approximately 10 feet before climbing away and manoeuvring for runway 05.

Three CAA staff at the aerodrome at the time witnessed the event, and CCTV footage showed the low fly-by.

Follow Up

Merv Falconer, the CAA Manager Fixed Wing, later interviewed the pilot. The pilot said his understanding was that a low pass down the runway was accepted common practice as part of a go-around,

having witnessed it performed on a number of occasions at various locations. He therefore believed he was able to do it, and he was aware that the rules didn't prohibit the manoeuvre.

Safe Practice

Merv says, "Just because the rules are silent on the matter doesn't make it an acceptable practice. Pilots need to realise that it is an unsafe practice, and a potentially dangerous manoeuvre to be so low to the runway at well in excess of the landing speed. In addition, it is not a good look; it creates a bad impression and sends the wrong message to other pilots.



"An aerodrome controller can approve a pilot to do a low approach and go-around, as in this example, but in doing so the controller has not cleared the pilot to do a low pass. Once the landing approach is discontinued, the controller's expectation is that the aircraft will climb away immediately at its best angle or normal climb profile for the prevailing conditions. A low pass down the runway will not be expected, and managing the sequencing with other circuit traffic is among the controller's priorities.

"Pilots need to remember that history has shown that doing non-standard things in a standard environment is a precursor to accidents," Merv cautions.

Even at approved air shows (aviation events), in accordance with rule 91.703 (d) (1), aircraft are not to be operated below 100 feet above the surface, unless they are an agricultural aeroplane doing an agricultural display or a helicopter operation.

For more information on aviation events refer to AC91-1.

The Rules

Merv cautions those pilots contemplating doing a low pass along a runway to consider, among other things, the Civil Aviation Act, section 13, that says a pilot-in-command is responsible for the safe operation of their aircraft in flight, including the safety and wellbeing of all passengers and crew, and the safety of any cargo carried.

Rule 91.201 also says that the pilot-in-command is to ensure the safe operation of the aircraft and the safety of its occupants during the flight.

Remember, an air traffic control clearance does not constitute authority to violate the rules.

"During a low pass along a runway, what action would a pilot take, or what options are open to a pilot, should an engine failure or other emergency occur at a critical stage when there is insufficient runway available to land safely ahead, taking into account the speed of the aircraft?" Merv asks.

Under rule 12.63, the CAA can take action if it receives information that shows an act or omission has caused unnecessary danger to any other person or to any property.

"The overarching principle for the pilot-in-command is to avoid placing themselves in a situation where they cannot say they were not creating unnecessary endangerment to persons or property during the flight.

"Pilots need to be mindful that under section 43A of the Act a person commits an offence if they operate any aircraft in a careless manner," Merv advises.

Be Safe

"The rules cannot cover every possible contingency, but they do say that flight safety should be a primary consideration for all operations. A good mental check beforehand is to always ask the question, is this manoeuvre warranted, and can I justify this if it goes pear-shaped," Merv says. ■



Revision to Cessna Service Manuals

We all know that ageing eventually sneaks up on us, and that we need to be handled more carefully in our old age, checked more frequently for cracking and fatigue, and maintained more vigorously than in our youthful years.

Well, surprise, surprise, aircraft are no different from us in this regard.

The Cessna Aircraft Company has shown this by recently introducing new supplemental aeroplane inspection procedures to the maintenance requirements for its ageing 200-series aeroplanes, and shortly its 100-series aeroplanes.

What's Up?

John Bushell, CAA Airworthiness Co-ordinator, says that Cessna's revision to its service manuals is part of the ageing aeroplane preventative maintenance programme.

"Ageing aeroplane maintenance practices are not new, and maintainers of heavy aeroplanes have been doing this work for a number of years," John advises.

A Concern

"The new Cessna maintenance requirements are mandatory detailed airframe inspections for all affected aeroplanes, regardless of the type of operation. The inspections include looking for such things as corrosion, cracks, evidence of fatigue, and general wear and tear.

"With 50 or so 200-series Cessna aeroplanes in the country, and about 500,

100-series Cessnas, there is an obvious capacity issue. The ability of the maintenance providers to cope with the workload, not to mention any required additional maintenance or rectification work, or the availability of spare parts, are issues for operators to consider when planning the maintenance," John says.

A concern for John is that operators may procrastinate and not get going with the required maintenance.

"Get the maintenance inspections programmed as soon as practicable, and don't leave them till the last minute," John cautions.

The Details

On 2 December 2011, Cessna released its Supplemental Inspection Documents (SIDs) for its 200-series aeroplanes manufactured between 1959 and 1985. The inspections have a compliance date of 31 December 2013.

SIDs for the 100-series aeroplanes manufactured between 1946 and 1986 will be released about April 2012, with a two-year compliance period.

Cessna advises, "The criteria for initial visual inspections will vary by model and aeroplane age or hours of operation and focus primarily on signs of corrosion or structural fatigue damage. Corrosion and fatigue are inevitable, but with early detection and proper maintenance, severity and effects can be minimized."

Excerpts from a recent Cessna information bulletin say:

The supplemental inspection program Cessna has developed is primarily a visual process aimed at supporting the continued airworthiness of ageing airframes. The new inspection requirements are very simple, and are based on visual inspection that can be done quickly by a trained inspector during an annual inspection.

Cessna encourages owners to review the inspections and incorporate these mandatory inspections into their maintenance plan.

Caution

"The CAA will require all owners to have the mandatory inspections carried out. Be warned that while Cessna say the inspections are simple, they are likely to take longer than anticipated, because disassembly of some components will be required, and some repair work is to be expected," John cautions.

Help

Contact your maintenance provider to discuss the inspection requirements, and to make arrangements for the inspections to be carried out.

Cessna's customer access portion of its service page (Cessna.com) has an interactive presentation, and a short video explaining the inspection process is on Cessna's You Tube channel at: youtube.com/CessnaAircraftCo ■

Carbon Monoxide Poisoning

Be alert, be sensible, and don't become a victim of carbon monoxide (CO) through excess exposure and possible poisoning.

CO is a dangerous toxic gas caused by incomplete combustion, and can be introduced to aircraft cabins from leaking exhausts, inboard leaks of 'normal' exhaust gases, or from combustion heaters.

The Danger

The danger is enhanced because of CO's sinister (colourless, odourless and tasteless) properties, which make it very difficult to detect unless you have an effective detection device. These devices though are not necessarily foolproof, as illustrated by the following recent incident report submitted to the CAA.

A twin-engine aeroplane was on a routine flight when the pilot started to feel unwell. Suspecting that CO exposure might be the cause, the pilot checked the cockpit CO detector for confirmation. The detector was situated near the pilot's breathing zone and readily visible, but showed no signs of CO presence.

Consequently, the pilot naturally did not initially attribute his feeling unwell to CO exposure. Only after he was told that a combustion heater defect had been identified during the last scheduled maintenance, did he consider that CO exposure might have caused his nausea. Subsequent examination showed that cracking of the heater assembly could indeed have allowed fumes into the cockpit.

The detector was within its currency, being only six months into its 18-month life. The reason that it didn't indicate the expected presence of CO from the defective heater could not be determined. The concentration and duration of exposure to CO however, and airflows at the time around the detector, were considered to be potential factors in its failure to register the probable presence of CO.

A new CO detector of the same type was placed in the outlet flow of a car exhaust and tested, but took some time to indicate the presence of the gas.

CO Poisoning Effects

According to the Oxford Aviation Training Theoretical Knowledge manual, *Human Performances and Limitations*, the dangers of CO cannot be overstressed. The haemoglobin in the blood has a much greater affinity for CO molecules than for oxygen (up to 250 times), and will transport them in preference to oxygen.



An example of a CO detector.

The manual says that the first symptoms of CO poisoning are a headache (or tightness across the forehead), nausea and dizziness. The advanced effects can include impaired vision, impaired judgement, impaired memory, flushed cheeks and cherry red lips, convulsions, and eventually death.

The manual also advises that mild hypoxia associated with flying at cabin altitudes of 8000 to 10,000 feet accentuates the effects of CO. The effects are cumulative because of the powerful binding of the CO to the haemoglobin, so a pilot who flies several times in the same day or on successive flights with exposure to CO can eventually suffer serious effects.

The recommended treatment is to isolate the source, ventilate the cabin with fresh air and take oxygen if available.

Prevention

Prevention is better than cure, so make sure that any CO-producing device is maintained properly and checked regularly.

Rule 91.509 requires a CO detector to be installed if the aircraft is fitted with an exhaust manifold cabin heater or a combustion cabin heater. If a detector is not required, give serious consideration to fitting one, depending on the aircraft and its risk of exposure. A good quality CO detector should be installed and regularly checked.

Remember though, from the example, that these devices may not necessarily be foolproof, so be alert to any personal signs of exposure and err on the side of caution if in doubt.

Read On

"Carbon Monoxide", September/October 2004 *Vector*, on the CAA web site www.caa.govt.nz under 'Publications'.

Report any CO occurrences using: www.caa.govt.nz/report, or 0508 4 SAFETY, or isi@caa.govt.nz. ■



Photos courtesy of Dave Kenny

Fuel Tank **Sloshing**

Beware those sloshing type noises coming from your fuel tank – it may not be the fuel.

Is sloshing sealant installed in your aircraft fuel tank? If you don't know, then you'd better find out, because if it's installed in your tank you could be in for a nasty surprise, as illustrated by the following recent example.

An Unwelcome Surprise

Dave Kenny from Cromwell knows about amateur-built aircraft, having assembled his own Jodel a number of years ago. He was recently involved with a friend who, several months ago, bought an Avid Flyer from a North Island vendor.

The aircraft was fitted with one fuel tank in the wing, which had developed a leak. In the process of rectifying the leak, Dave identified loose flaking material in the tank below the filler neck, so they decided to investigate further. After cutting access holes in the fibreglass tank, what they discovered came as a shock. Large sheets of sloshing compound had lifted from the tank walls, and large flakes were floating loose. Extensive delaminating of the sloshing sealant was evident throughout the tank.

Dave says, "There was no maintenance record of the type of sloshing sealant used, or when it had been applied to the tank, which was additional to the factory build. The tank itself was in good order with no sign of fibreglass flaking.

"Such fragments of sealant could easily have blocked the one small fuel pickup

in the tank, or its breather, and led to fuel starvation of the engine.

"With only one fuel tank, there was no redundancy should a blockage occur. We are lucky to have found it, because the owner was about to start training and it could have been fatal," Dave said.

Dave and the owner completely removed the sloshing sealant from the fuel tank, a major job, and repaired and resealed the tank with a fuel-resistant resin specifically designed for fibreglass. They also submitted a defect report to the CAA for follow-up.

What It Is

Bob Jelley, CAA Aviation Safety Adviser and Licensed Aircraft Maintenance Engineer, says that sloshing compound is a 'rubberised' material that is thin enough to pour into fuel tanks and 'slosh' around to cover and seal all surfaces once it dries.

"Sloshing sealants can be widely used in industry, not just in special category aircraft. A variety of compounds are used in the different sealants available, so the correct choice appropriate to the tank material and fuel type is essential.

"For it to be effective, the compound needs to be approved, properly prepared and applied to correctly cleaned and prepared surfaces, otherwise it won't do the job," Bob warns.

Precautions

Because of problems with sloshing compounds, the manufacturer of RV kits, Vans Aircraft, has warned builders not to use it, and owners of older aircraft are asked to check if sloshing material has been applied.

"The problems seem to be more prevalent with fuel tanks that have not been factory assembled, including those that have had fuel tank repairs.

"The ethanol additives in automotive fuels (Mogas) can attack the sloshing compound, and many of the common brands of approved aircraft sealants are not to be used with Mogas," Bob says.

In September 2011, Vans Aircraft issued Service Bulletin 11-9-13 *Fuel Tank Slosh Inspection*, for all its models, to inspect for the presence, and condition, of fuel tank sloshing compound before further flight.

The Service Bulletin cautions that, "the safe service life of slosh can vary significantly depending on many factors including initial preparation of the interior of the tank, type of slosh, type of fuel used, etc. Failure of fuel tank slosh can cause in-flight power loss leading to injury or death. Periodic inspections should be performed to assure that slosh, if present, remains in an airworthy condition."

More Information

EAA's *Sport Flying* Spring 2011. ■

Low Flying Helicopters

We all know that helicopters are wonderful inventions, never intended to be operated far from the ground, right? Some helicopter pilots have even (fictitiously) claimed that they get nose bleeds above 500 feet!

Helicopters by design are multifaceted machines, meant to be used for many and varied operations. The fact they are multifaceted and able to be operated at low level, or that you may like the thrill, or feel the need to impress someone, are not bona fide reasons for low flying.

Caution

Under certain provisions, commercial transport operations may be conducted at low level, but no bona fide reasons exist for low level air transport operations. Under Part 91, operations over congested areas below 1000 feet are not permitted.

Steve Kern, CAA Manager Rotary Wing and Agricultural Operations, says bad weather has sometimes been used as a reason for low flying, but this is incorrect.

"Bad weather is no valid excuse in itself for low flying and you should either turn back or land, unless an emergency arises during flight and the requirements in section 13A of the Civil Aviation Act are complied with.

"A person flying an air operation must ensure they don't start a VFR flight unless the current meteorological information indicates the minima in Part 91 and Part 135 can be complied with.

"Some pilots have interpreted the 'beneath the ceiling' reference in rule 135.155 (d) (3) to mean it is okay to fly low, so long as you remain under the ceiling, which is incorrect," Steve cautions.

The Rules

Rule 91.311, *Minimum heights for VFR flights*, prescribes the minimum acceptable heights for flying, and refers to those occasions when low flying may be conducted.

Part 135, *Air Operations Helicopters and Small Aeroplanes*, contains the provisions for low flying during commercial transport operations.

Be Safe

"The rules are intended to help keep people safe, and a good understanding and application of the rules about minimum heights is important for flight safety," Steve advises. ■

ARCs

Not curves, but concerns about aviation safety.

Aviation Related Concerns (ARCs) are, as the name suggests, concerns about aviation related activities. These can be anything not covered by Part 12, such as witnessing an accident, suspected unsafe practices such as low or reckless flying, breaching the rules, or improper maintenance.

They are not an opportunity to nebulously 'get at somebody' simply because they are a competitor, or because they've upset you in some way.

Lynne Fursdon, CAA Airworthiness Administrator and ARC coordinator, says ARCs are a means of collecting information about an individual event involving aircraft, or some other aspect of aviation that is not required to be reported under the Part 12 requirements.

"Put simply, ARCs are a 'catch all' mechanism. They include complaints about an aviation activity from members of the public and complaints from civil aviation participants about the behaviour or conduct of other participants that may not otherwise be reported.

"ARCs are potentially a rich source of information for the CAA, and members of the public and aviation participants are encouraged to report their concerns," Lynne says.

The CAA will investigate all complaints, and a person dedicated to dealing with ARCs will properly identify the seriousness and circumstances of an incident.

"Good management and investigation of the ARC reports gives the CAA valuable information about safety and security risks within the civil aviation system in a consistent and useful manner.

"Some incidents can seem quite innocuous when reported, but when thoroughly investigated, they can lead to good information for the CAA that is useful in maintaining safety within the industry.

"Depending on the outcome of the investigation, the matter can be referred to the most appropriate unit within the CAA for follow-up corrective action," Lynne advises.

To report an ARC, use: www.caa.govt.nz/report, or email isi@caa.govt.nz, or telephone 0508 4SAFETY.

Surveillance Process Developments

The CAA's surveillance process is undergoing change in order to provide increased efficiency and effectiveness, and will be compatible with the risk-based approach of the proposed Safety Management Systems. We summarise progress and what organisations can expect to see in the future.

Background

In January 2010, a CAA report made recommendations on potential improvements to the CAA's surveillance system. The recommendations of this report were supported during a review in June 2010 of the CAA's certification and surveillance functions by the Office of the Auditor General (OAG). Both the CAA and OAG reviews identified the need to improve both the efficiency and the effectiveness of the CAA's surveillance process.

Consequently, the CAA embarked on a programme to streamline the efficiency of the surveillance workflow and to improve the allocation of its surveillance resource by applying that resource to the areas assessed as being of higher risk. The programme also aimed to improve the effectiveness of audits through the application of process audit techniques.

The new surveillance process will also be compatible with the risk-based approach of the proposed Safety Management Systems.

In developing the associated training for its enhanced approach to surveillance, the CAA has benefited from the NZQA approval of the series of National Diplomas in Aviation. Two of the CAA's surveillance training modules (operational risk management and audit skills) relate to Unit Standards that are part of the National Diploma in Aviation (Regulatory Oversight and Governance). As noted by the Honourable Nathan Guy at the time of the launch of the diplomas, "These Diplomas are a world first. They set the bar internationally and position New Zealand as a global

innovator, and indeed leader, in aviation safety and risk management.

"They are about building better, stronger business and complement the work the Civil Aviation Authority is doing on Safety Management Systems that will come into play in the next two years," said Minister Guy.

The CAA's audit training is being delivered to the NZQA Level 5 diploma standard by Aerosafe Risk Management, and Gulf Consulting Limited.

How it Works

The surveillance process has been changed to provide both efficiency and effectiveness improvements.

A key change to the process is the implementation of an operational risk assessment using a risk assessment toolbox developed by Aerosafe Risk Management specifically for the CAA's surveillance process. This operational risk assessment, based on an assess-



ment of 10 dimensions, is aimed at determining the areas of higher risk at the participant and module levels. The Participant Risk Profile will be used to define the risk-based scope for the audit. Using the risk-based audit scope statements and the participant expositions, the CAA's audit teams will identify key processes within the organisations on which to focus its efforts. Consequently, there will be significantly more effort expended in the preparation phase before the auditors actually conduct the on-site audit. This will optimise the time in the field and assist in producing a more effective audit.

The efficiency of the CAA's surveillance business tool has also been improved by streamlining the workflow process to provide more time for the audit preparation phase. In addition, managers will be able to dedicate more resource on the overall assessment of risk information, the appropriate targeting of resource, and the monitoring of the performance of the surveillance activity.

The audit report has also been 'automated' and will now reflect the risk-

based scope of the audit, what rules were tested during the audit and the areas of non-compliance (findings). An audit analysis or risk assessment will no longer be included in the audit report, as the risk-based scope of the audit will provide an overview of the CAA's assessment of the participant's risk profile.

What Participants Will See

So what will all this mean to those being audited? It is acknowledged, that while the changes are primarily focused on the efficiency and effectiveness of the CAA's surveillance process, there will be some contingent impact on the aviation industry.

» Organisations can expect to see more in-depth audit of selected areas. The audits will have a more risk-based focus and will tend to cover processes of an organisation that are deemed to be of higher risk. This will mean that organisations may be audited in only some areas of their operation during a visit, compared with the current practice.

» Similarly, with audits that are part of a customised audit programme, there will be a risk-based focus to these audit programmes and the associated modules.

» Organisations should be aware that the audit programme will have an increased risk-based focus which could result in more or less auditing by the CAA as the assessed risk varies.

» Consequently, organisations could expect to see a variation in the CAA audit-related charges.

» The audit report will be automated with no audit or risk analysis included.

» The client risk profile will no longer be routinely supplied to organisations (this will mainly affect General Aviation organisations).

The key inference that can be drawn here is that organisations without a robust safety management system, and associated risk management strategies, are likely to be subject to more frequent and in-depth surveillance. ■



Location, Location, Location

A well-known phrase in the real estate industry – and it applies equally to using the right piece of real estate at Christchurch International Airport. Of particular note is the occasional mistaken landing on the grass area between sealed Runway 02/20, and the grass runway and taxiways. That is ‘no-man’s land’ (or more aptly, ‘no-lands land’).

It’s not hard to get it wrong if you are unfamiliar with the layout at Christchurch, and more especially if you have not done your homework beforehand. At this point we would normally say to check the current *AIP New Zealand* pages NZCH AD 2-35.1 and 2, 2-51.2 and 2-53.3 for details of grass runway operations – but – some important details have changed recently, and these have yet to be published. The 31 May 2012 amendment will feature these changes.

The width of grass Runway 02/20 has been reduced from 135 to 70 metres by relocating the eastern boundary, and Taxiway C has been moved correspondingly. Holding position ‘Hold 2’ on Taxiway E is also relocated, but Taxiway D remains as it was. Ground markings and signage are being upgraded to complement the changes.

The following photographs should help clear up any confusion in the meantime.

A general reminder – where pilots notice that marker boards, signs or ground markings at any aerodrome are affected by grass growth or other deterioration, and this could lead to confusion, the aerodrome operator should be notified so that they can do something about it. Contact details can be found on the relevant aerodrome charts in *AIP New Zealand*. ■

Important *AIP New Zealand* Vol 4 pages to study before using the grass runway:

NZCH AD 2-35.2 VFR Arrival Procedures RWY 02/20. The procedures on this page apply to VFR arrivals for both the sealed runway and the grass runway. Note that the arrival procedures from the west include extra instructions for aircraft joining for the grass runway.

NZCH AD 2-51.1 and **51.2** give the circuit altitude and direction and other information for grass Runway 02/20.

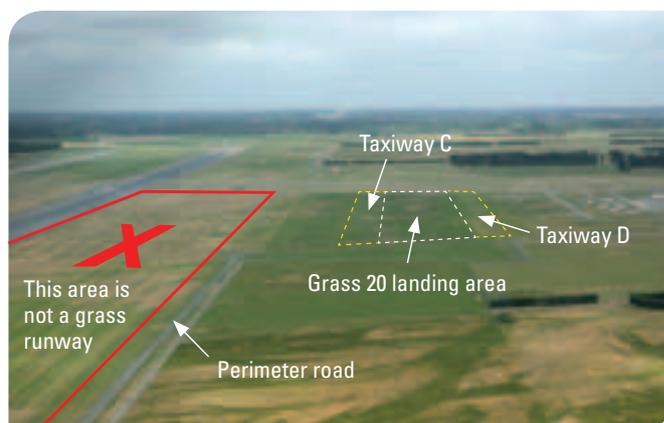
NZCH AD 2-52.1 gives takeoff and landing distances, and group rating, for grass runway performance calculations.

NZCH AD 2-53.3. The Christchurch ground movements chart (3) shows the position of the grass runway, Grass Taxiways C and D, the holding points (Hold 1,2,3) on Taxiway E and the taxiways to the aero club and western GA areas.

NZCH AD 2-52.2. The Christchurch Helicentre procedure page is useful study, because of its close proximity to the grass runway.



Turning final for Grass 02. Note the reduced width of the grass runway and consequent relocation of Taxiway C. Diagrams are indicative only.



The perimeter road parallels sealed Runway 02/20 north of Taxiway C, and is on the same alignment to the south of Runway 11/29. When on final for either grass runway, keeping to the west of the perimeter road will ensure that you don’t land in ‘no-lands land’.

Young Eagles News



The Young Eagles programme was launched in 1992 by the Experimental Aircraft Association in the United States to give interested young people an opportunity to go for a flight in a general aviation aeroplane.

In New Zealand, the programme is run by Flying New Zealand (the Royal New Zealand Aero Club). The programme's aims include a first flight experience in a light aircraft, and participation in activities such as visits to control towers, maintenance workshops, and aircraft museums.

Kevin Lloyd, Young Eagles coordinator, was very impressed with the calibre of this year's Young Eagles applicants.

"Every year the standard gets higher. The Young Eagles programme is the fastest growing area of Flying NZ activities. The 2013 Around New Zealand Air Safari has named the programme as the recipient of any surplus from the event. It is envisaged to get at least one Young Eagle on each leg of the Safari," says Kevin.

A highlight is the annual award of the Ross Macpherson Memorial Flying Scholarships worth \$2000 toward flight training at the winning Young Eagle's aero club. In addition, the winner of a written test is awarded the Nola Pickard Trophy.

Scholarship winners for 2012 are:

Michael Popplewell – New Plymouth Aero Club

Teresa Bjerga – Canterbury Aero Club

Thomas Davis – Waikato Aero Club

Sevi Rust – Tauranga Aero Club

Daniel Breakspeare – Motueka Aero Club.

The scholarships and trophy were presented at Flying New Zealand's National Championships held at North Shore Aerodrome, in February 2012.

"This year at the Nationals, we invited Young Eagles who had not received scholarships to join in the activities and

12 attended. One of those was Chris Lee from Hawke's Bay who won the coveted Nola Pickard Trophy," says Kevin.

This year's scholarship winners are enthusiastic:

Teresa Bjerga says, "The Young Eagles Programme and scholarship means that I can aim for my first solo flight, advance towards my PPL and Commercial someday, and one day become a fixed-wing pilot in the air force."

Thomas Davis says, "I think it is awesome to be part of the Young Eagles – it means I can be around aircraft and learn new things. Winning the scholarship means I can start attempting my dream to fly. I love flying and know it's what I want to do."

The CAA is a major sponsor of the Young Eagles programme. Other sponsors are: Airways, Aviation Services Ltd, Aviation Cooperating Underwriters Ltd, and the former Pine Park Flying Club. ■

For more information, see www.flyingnz.co.nz/youngeagles.html, and www.youngeagles.org.



The 2012 Young Eagles Scholarship winners (from left): Daniel Breakspeare, Thomas Davis, Teresa Bjerga, Young Eagles Coordinator Kevin Lloyd, Sevi Rust, and Michael Popplewell.

Letters to the Editor



Congestion in Westland National Park – November/December 2011

In the last issue for 2011, I was very disappointed in the article on page 12 and 13 on Congestion in Westland National Park. The article failed to mention anything about gliders in the area.

As a glider pilot who flies regularly in that area, I know that the commercial fixed wing and helicopter operators are well aware of the glider traffic and have a good understanding of our type of use of the area.

But recreational pilots, in particular the new license category, seem to have little understanding of where they might expect to find gliders and what gliders might be doing. There would be very few days when there aren't gliders in that area operating from 2000 feet agl to FL250, depending on conditions.

George Deans (abridged)

Thanks for your contribution. We'll consider gliding activity in future articles. Editor

Raglan and Waiheke articles – January/February 2012

I have been flying out of Raglan over the busy summer holiday period since 1992. I concur about the comments made, especially regarding the gradient and the frequent curl over caused by the trees on 23. I have seen the wind socks pointing at each other, both indicating 15 knots!

Over the summer there is another big hazard, which is people crossing the runway to get to the beach. The 'foot path' is clearly visible in your photograph on page 16. There is often no regard to aircraft and I even had a couple of mischievous teenagers deliberately run at the aircraft as I was taking off on 23 in the Tecnam last year. Also, people crossing the strip with their MP3 players plugged in have not heard gliders at all. The risk is highest on 05, as the pedestrian crossing point is about where the aircraft becomes airborne or just after touchdown. My experience has been that when faced with a fast approaching aircraft, they tend to try and make it all the way across, rather than stopping or going back the way they came.

My other comment is on Waiheke. I flew in there last year and as per the AIP Vol 4, got a briefing from the local CFI, which was comprehensive and to the point. However, he did not mention the slope at all and I missed the significance of the 2U2D entry on the landing plate. It is not at all obvious from your photo in Vector that there is a significant slope and this can be a trap for the unwary or inexperienced with the issues associated with the lack of a horizon when approaching uphill and the higher approach speed required to cope with the increased round out and of course the converse when landing downhill.

Julian Mason (abridged)

A Cat Instructor, Piako Gliding Club

Thanks for adding to the discussion about these two aerodromes. Editor

Security Threat Stopped – November/December 2011

I refer to your recent issue, which includes an article relating to the television reporters who tried to impersonate an airline pilot and gain entry to the security areas at Auckland Airport. There can be no doubt that this was a stupid action by the television people involved, and they deserve any penalties that a court may impose.

What I do find disturbing is that the Vector article goes on to suggest that every person who does not have a definite employment or passenger role at any airfield in the country is therefore somehow up to no good and should be apprehended. Excuse me? So any individual at or near any sort of local airstrip, GA field or regional aerodrome is to be suspected unless they can prove otherwise?

How does an aviation-minded individual develop their interest? I hung around various airfields as a youngster, soaking up the atmosphere and acquiring the ability to tell a Friendship from a Fletcher. No-one suggested that I was about to sabotage any aircraft or airfield structure, and generally the attitude of those around the place at the time ranged from complete indifference to a sort of friendly tolerance. Try that today at places like Queenstown or Hamilton and see how far you get. Faced with impenetrable chain-mesh fencing, hovering security guards, numerous signs advising that aviation is dangerous and announcing harsh penalties for entry onto the premises, no budding aviation enthusiast is going to feel welcome or get far.

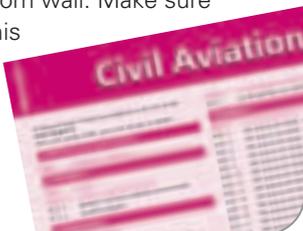
Peter Lewis (abridged)

The best way to foster aviation is to engage with the people that show interest. Every club and aviation organisation can do this. Ask them what their interest is, and if they've ever taken a trial flight, and so on. You may find you get a new member, and if not, they'll think you're a friendly lot. At the same time, you've found out someone's genuine purpose for 'hanging around'.

We cannot be complacent in New Zealand – we have to apply international standards – and we've had serious incidents, including interference with aircraft, that have threatened public safety. The Vector article deals in a balanced way with requirements for large airports and small GA aerodromes. Editor ■

New Products

CAA Rules Poster Enclosed in this issue of *Vector* is an updated *Civil Aviation Rules and Advisory Circulars* poster. The most up-to-date information on Rules and Advisory Circulars will always be on the CAA web site, www.caa.govt.nz, but this poster is useful to have on the office or briefing-room wall. Make sure you replace old versions with this updated one (March 2012) – the colour is different to make updating easier. You can request extra copies from info@caa.govt.nz. ■



iPad™ Update

In the January/February 2012 *Vector*, we reported that iPads can delete data under certain circumstances. Thanks to the readers who wrote in to point out that an upgrade of the operating system to 5.0.1 allows application developers to mark essential files as “Do Not Delete”. This will certainly help the situation, but caution is still required, as reported by one online journal:

App developers must update their products to incorporate that capability, and ForeFlight and Hilton Software (WingX) plan new versions shortly. Pilots using iPads should be cautious, warned ForeFlight: “Even with iOS 5.0.1, we recommend that you always preflight your apps.”

Hilton Software founder Hilton Goldstein added, “Note that developers can only prevent files from being deleted, but we have heard that iOS is deleting entire apps and data, which the iOS fix won’t fix.”

Aviation International News (AIN) 22 November 2011.

Refer to Advisory Circular AC91-20 for information on the use of Electronic Flight Bags. ■

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
16 Apr 2012	23 Apr 2012	28 Jun 2012
14 May 2012	21 May 2012	26 Jul 2012
11 Jun 2012	18 Jun 2012	23 Aug 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

John Keyzer (Maintenance, North Island)

Tel: +64 9 267 8063
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Mobile: +64 27 213 0507
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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-LJB Piper PA-28-181

Date and Time:	16-Jan-08 at 12:20
Location:	Near Cass Saddle
POB:	2
Injuries (Fatal):	2
Damage:	Destroyed
Nature of flight:	Other Aerial Work
Pilot Licence:	PPL (Aeroplane)
Age:	21 yrs
Flying Hours (Total):	143
Flying Hours (on Type):	73

The pilot was on a cross-country training flight from Christchurch to Hokitika via Arthur's Pass. The planned return flight path was direct to Christchurch, after refuelling the aircraft at Hokitika. When the aircraft failed to arrive at Christchurch and became overdue on the SARTIME, a search was initiated by RCCNZ. At approximately 17:30, the burnt-out aircraft wreckage was located, and the first rescuers found the pilot and passenger deceased. A full accident report is available on the CAA web site.

[CAA Occurrence Ref 08/129](#)

ZK-ROC Piper PA-34-200

Date and Time:	21-Aug-08 at 12:00
Location:	Paraparaumu
POB:	3
Injuries:	0
Damage:	Substantial
Nature of flight:	Training Dual
Pilot Licence:	CPL (Aeroplane)
Age:	23 yrs
Flying Hours (Total):	2015
Flying Hours (on Type):	170
Last 90 Days:	72

On a type conversion training flight, the B Cat Instructor (with two students on board) returned to the airfield intending to conduct two touch-and-go circuits before landing. On the second circuit, the landing gear was selected down, however three 'greens' were not received, indicating an unsafe gear situation. After a low approach and overshoot, two ground observers advised the PIC that the gear appeared to be down and locked. A normal approach and landing was made. On the landing rollout the left main gear slowly retracted causing the left propeller, wingtip and horizontal stabiliser to contact the runway. On realising that the gear was retracting, the PIC closed the mixtures to try to prevent damage to the propellers and engines. The aircraft veered left off the runway, destroying a runway light. The aircraft was later examined by engineers, and no fault with the landing gear system could be identified.

[CAA Occurrence Ref 08/3557](#)

ZK-SKT Cessna U206G

Date and Time:	12-Mar-10 at 15:57
Location:	Marsden Cove
POB:	1
Injuries (Fatal):	1
Damage:	Destroyed
Nature of flight:	Private Other
Pilot Licence:	PPL (Aeroplane)
Age:	27 yrs
Flying Hours (Total):	186
Flying Hours (on Type):	40
Last 90 Days:	5

During a takeoff from a paddock at Marsden Cove marina, the aircraft did not continue to climb. It flew parallel with the ground and was seen to accelerate. The aircraft continued to follow a track close to the ground, and on reaching a van parked close by it was seen to pull back hard into a climb and bank to the right. The right wingtip struck the right hand corner of the van. The aircraft crashed into the paddock adjacent to the van and was engulfed in flames. The first persons to arrive at the scene found that the pilot had not survived the accident. A full report is available on the CAA web site.

[CAA Occurrence Ref 10/885](#)

ZK-YES Beech 76

Date and Time:	08-Apr-10 at 13:30
Location:	Ardmore
POB:	2
Injuries:	0
Damage:	Substantial
Nature of flight:	Training Dual

During a training flight the left main gear did not indicate 'down and locked'. The pilot elected to discontinue the training and attempted remedial action. This was unsuccessful, so the pilot attempted to land the aircraft. On touchdown, the left main landing gear collapsed. This was caused by a broken actuator ram interfering with the upper part of the leg, and preventing the leg falling into the 'down and locked' position under the emergency extend drill.

The ram failure was caused by a dual mode failure of the hydraulic pump, in that the pressure switch was set incorrectly, and the relief valve was worn and did not function correctly. There is no evidence to suggest that Part 43 maintenance had not been performed to standard.

The hydraulic pump is an 'on-condition' item. The gear function "should" be checked at every 100-hour inspection. No check of pump switch pressure is called for in the programme, as this is probably a vendor setting when the pump is assembled.

[CAA Occurrence Ref 10/1197](#)

ZK-PCC Air Tractor AT-402B

Date and Time:	10-Apr-10 at 10:34
Location:	Mt Bruce
POB:	1
Injuries (Minor):	1
Damage:	Substantial
Nature of flight:	Agricultural
Pilot Licence:	CPL (Aeroplane)
Age:	56 yrs
Flying Hours (Total):	21628
Flying Hours (on Type):	4400
Last 90 Days:	198

The agricultural aircraft was taking off on the first load of the day. The first half of the airstrip was uphill, it had wheel mark damage, and the surface conditions were damp. A possible tail wind component may also have affected the takeoff performance. The aircraft became airborne momentarily, then descended at a high rate until it struck terrain adjacent to the takeoff path. The aircraft was destroyed but the pilot survived the accident with minor injuries.

[CAA Occurrence Ref 10/1242](#)

ZK-HEH Ultrasport 555T

Date and Time:	17-Nov-10 at 18:48
Location:	Kapuni
POB:	1
Injuries (Minor):	1
Damage:	Substantial
Nature of flight:	Private Other
Flying Hours:	Not stated

The aircraft had a power loss during takeoff. The main fuel filter was found to be contaminated. The fuel drum that was used to refuel the aircraft was found to be contaminated. The operator instigated improved refuelling procedures including using water-detection paste, water trap filters and new fuel drums.

[CAA Occurrence Ref 10/4556](#)

ZK-HAA Robinson R44 II

Date and Time:	16-Jul-11 at 18:00
Location:	Kaero, Northland
POB:	1
Injuries:	0
Damage:	Destroyed
Nature of flight:	Agricultural
Pilot Licence:	CPL (Helicopter)
Age:	58 yrs

The operator was engaged in spraying chemicals on a block to the west of Kaero. The pilot completed the spraying operation and landed to wash and refuel the aircraft before the ferry flight to the overnight rest area, approximately 5 km away. The aircraft was particularly contaminated with the chemical and required extensive soap washing at the site with three to four times more soap and water than is usually applied. It was then refuelled with 70 litres.

The pilot took-off in the dark, at approximately 1815, to fly to the nearby hostel. Daylight had officially ended at 1755. After climbing out vertically, the pilot realised that he was having engine trouble. When the collective was raised the engine was still delivering power but would not respond. The pilot elected to carry out a precautionary landing but, in the dark, had difficulty finding a suitable place even though he knew the topography. He caught a glimpse of the dirt road below him so elected to attempt a landing there.

Because of the darkness he misperceived the rate of descent and due to the engine problem was unable to flare effectively. He hit the ground hard, short of the intended landing point. The helicopter rolled over. After extricating himself, the pilot noticed that the aircraft was on fire. The ELT had activated and was detected. RCCNZ contacted him two minutes after the accident. The aircraft was almost completely destroyed by the fire.

[CAA Occurrence Ref 11/3094](#)

ZK-HNJ Hughes 369D

Date and Time:	29-Sep-09 at 16:15
Location:	Fox Glacier
POB:	3
Injuries (Minor):	2
Damage:	Substantial
Nature of flight:	Transport Passenger A to B
Pilot Licence:	CPL (Helicopter)
Age:	25 yrs
Flying Hours (Total):	720
Flying Hours (on Type):	465
Last 90 Days:	46

While on approach to land on the Fox Glacier neve, about 2–3 ft agl, the engine had a suspected compressor stall. The pilot elected to fly away into descending ground, however in attempting to do so caught the right skid of the helicopter in snow, causing the helicopter to roll over onto its right hand side.

[CAA Occurrence Ref 09/3721](#)

ZK-NPN Cessna 152

Date and Time:	07-Nov-09 at 11:00
Location:	Hawera
POB:	2
Injuries:	0
Damage:	Minor
Nature of flight:	Training Dual
Pilot Licence:	CPL (Aeroplane)
Age:	34 yrs
Flying Hours (Total):	920
Flying Hours (on Type):	800
Last 90 Days:	204

The aircraft was involved in a bomb dropping competition when it drifted off the approach path. The 'bomb' was dropped and struck the wing of another aircraft that was stationary and holding short of the drop zone on a cross runway.

[CAA Occurrence Ref 09/4937](#)

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

Robinson R22 Beta

Bolts

An A018 clutch was found with the clutch seal retainer bolts incorrectly installed. The manufacturer was contacted and its explanation was that there had been a design change to the A018 clutch assembly at revision Z. The change reversed the direction of the bolts through the seal retainers. These bolts were originally installed through revision Y with their heads forward toward the long end of the shaft. For revision Z and later, the heads were turned aft toward the short end of the shaft to provide increased clearance. Both the Illustrated Parts Manual and the Maintenance Manual were revised to show the current installation with the bolt heads aft. The O/H instructions were not amended and this is probably the reason why the reporter found the bolts installed inconsistently.

[CAA Occurrence Ref 11/1157](#)

Aero Commander 680-F

Outboard fuel cells

Part Manufacturer:	Goodyear
Part Number:	50315-5
ATA Chapter:	2810
TSO hours:	42.5
TTIS hours:	4509

Fuel leaks were noted from the outboard section of each wing, with fuel fumes noted in the cabin. Inside the fuel cells, the rubber fuel bladder's moulded vent nipples had cracked, allowing fuel to leak into the wing when the tanks were full. This is a common occurrence with fuel bladders of this age in Twin Commanders, especially the outboard fuel cells, which often sit dry and without fuel. The fuel bladders were installed as part of STC No. SA 199SW on 28/7/1977, to give extended range. All eight fuel cells originally installed by STC were replaced, due to age, hardness, and the condition of the remaining fuel bladders.

[CAA Occurrence Ref 11/3539](#)

Aerospatiale AS 350BA

Horizontal stabiliser

Part Manufacturer:	Eurocopter
ATA Chapter:	5510
TTIS hours:	3226.8

The engineer detected a crack in the underside of the horizontal stabiliser. An approved repair was carried out and the aircraft was returned to service.

[CAA Occurrence Ref 11/989](#)

Alpha R2160

Propeller spinner

Part Model:	60-61-111-001
ATA Chapter:	6110
TSI hours:	2443
TTIS hours:	2465

During flight, the pilot saw something flick off the front of the aircraft but could not identify what it was, and a vibration was also noticed. The pilot returned to the departure aerodrome and landed safely. After landing, the pilot found that part of the propeller spinner had separated in flight. Maintenance investigation found that the spinner showed signs of a crack that had been repaired in the past. It is suspected that the crack continued to grow as time passed. The crack eventually led to a rip in the spinner, causing it to fail. A new spinner was installed and the aircraft manufacturer was advised.

[CAA Occurrence Ref 11/3398](#)

Cessna A152

Bracket assembly

Part Manufacturer:	Cessna
Part Number:	0432004-9
ATA Chapter:	5510
TTIS hours:	7798.7

During disassembly for a repaint, the steel vertical fin aft attachment bracket, part number 0432004-9, was found to have a 16 mm crack adjacent to the right hand outboard fin fork attachment. The bracket was replaced and the manufacturer advised.

[CAA Occurrence Ref 11/1348](#)

Cessna U206F

Cylinder

Part Manufacturer:	ECI
Part Number:	AEC 635448RB
ATA Chapter:	8530
TSO hours:	838.1
TTIS hours:	838.1

The pilot made a precautionary landing after the engine developed a high CHT, slight power loss, and abnormal engine noise. Maintenance investigation found that the number two cylinder had no compression. When the cylinder was removed the piston was found to be damaged, and large cracks were found radiating from the intake valve seat. A new cylinder assembly was fitted.

[CAA Occurrence Ref 11/1551](#)

Hughes 369E

Spidertrack system

ATA Chapter: 2400

During scheduled maintenance the engineer found that a Spidertrack system had been fitted by unknown persons. When the circuit breaker panel was removed to inspect the installation, he found that the power wire was bared and wrapped around the GPS circuit breaker terminal. He also found that the wiring had been tied together with lock wire. The engineer terminated the wiring correctly, removed the lock wire, and reported it to CAA.

[CAA Occurrence Ref 11/2002](#)

NZ Aerospace FU24-954

Trim motor

ATA Chapter: 2732

After parachutists exited the aircraft, it was noticed that the elevator trim motor had failed, leaving the aircraft trimmed in a nose up attitude. As the FU24-954 is not fitted with a manual elevator trim wheel, the pilot retained pitch control using both hands on the control column to descend and make a safe landing. During maintenance investigation, the trim motor was tapped gently and the motor then operated without any problem. It is likely that the trim motor brushes were sticking. The trim motor was subsequently removed for permanent repair and a replacement item fitted.

[CAA Occurrence Ref 11/2437](#)

Pacific Aerospace 750XL

Rudder

Part Manufacturer: Pacific Aerospace
Part Number: 11-49101-12
ATA Chapter: 2721
TTIS hours: 96.2

The pilot experienced control difficulties during a climb. Investigation found that the lateral stability augmentation system had failed, due to the wear and eventual fatigue of the right hand cable at the clevis end. The clevis had been fouling on the power quadrant cables as they passed through the stability augmentation system area.

[CAA Occurrence Ref 10/4945](#)

Piper PA-18A-150

Battery

ATA Chapter: 2400

The engine stopped after the pilot closed the throttle entering the flare to land. The engine could not be restarted immediately afterward, as there was insufficient power in the aircraft battery. The maintenance provider charged the battery and the aircraft started with no issues the following day. The engine idle RPM was found to be low at 500 RPM; this was reset to 700 RPM. No further problems have been experienced. The pilot advised that

he elected not to use the carb heat on approach, so carb ice may have been a factor. The gliding club's Tugmaster has since advised all tow pilots to use carb heat when power is reduced in the circuit.

[CAA Occurrence Ref 11/3546](#)

Piper PA-31-350

Main wheel

Part Manufacturer: Cleveland
Part Number: 753-219
ATA Chapter: 3241

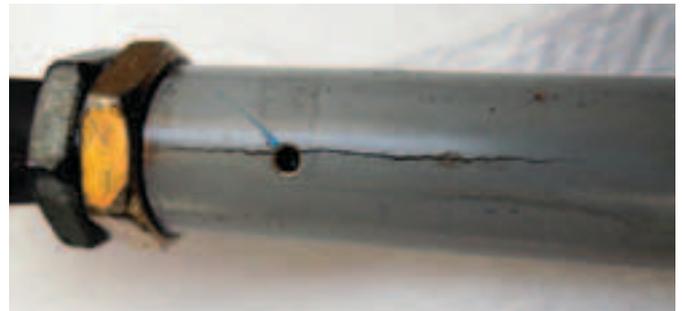
During taxi, vibration was noticed from the right main wheel. The aircraft became very hard to manoeuvre and the pilot ended up shutting the engines down on the runway edge. After shutdown, inspection revealed that the right tyre had separated from the rim. Examination of the wheel determined that the inner wheel half had a fracture of the rim covering three through bolt holes. The rim had separated so that the edge was rubbing on the brake calliper, causing the rubbing noise the pilot observed during taxi. On closer visual examination, indications of cracks adjacent to three further through bolt holes (not in the rim separation area) were observed. The right hand wheel was replaced and the aircraft was returned to service.

[CAA Occurrence Ref 10/4981](#)

Robinson R44 II

Tail rotor control push rod

Part Manufacturer: Robinson
Part Number: C343-1
ATA Chapter: 6400



During a scheduled 100-hour inspection, a lengthwise crack was seen at the witness hole in the end of the C343-1 tail rotor push/pull tubes. The tube is mounted vertically between the rear seats. Another aircraft was checked and found to have a similar but smaller crack. The FAA was informed, and the tubes were sent to the manufacturer.

They advised that this was a known problem due to stress corrosion in 2024-T tubes, from hoop stress caused by locking nut clamping forces. The FAA advised that it had been determined that a cracked tube could take operating loads but not certification loads. The manufacturer is currently developing a new part made from a different material specification 6061-T6. Both the FAA and the manufacturer are considering airworthiness action. Maintainers should use vigilance when inspecting this push/pull tube and report any defects found to CAA.

[CAA Occurrence Ref 11/4715](#)



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Here are the venues and dates for the South Island seminars. The remaining North Island venues and dates will be published in the May/June *Vector*, and a complete list of seminars will be on the CAA web site, www.caa.govt.nz, see "Seminars and Courses" – so keep an eye out.

