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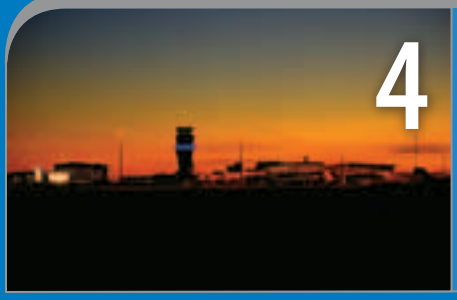

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Traffic, terrain, cloud, wind, and turbulence, can make an element of the 'standard' plan unsafe. Adapt your plan to fit the situation you're in.

Cover photo: Hugh Mitton

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Photo courtesy of Ross Gray.

Life Lines

If you fly paragliders, your safety depends on the airworthiness of your wing. Make sure you have the length of your lines checked during your aircraft's next warrant of fitness – it may save you from injury.

The A and B line groups of a paraglider bear most of the load and stretch over time, while the C and D and brake line groups tend to shrink. This increases the angle of incidence of the wing and the angle of attack, making the paraglider less likely to recover from a stall where the paraglider descends vertically with no forward airspeed, when normal control inputs are applied. This type of stall is called a parachutal, or steady state, stall.

Under normal circumstances you should be able to recover from a steady state stall within four seconds by simply raising your hands to the pulleys. If your brake lines (or control lines) are too short, however, due to shrinkage or deliberate shortening, you may not be able to reduce the angle of attack enough to recover. For this reason, it is also essential to check the length of your brake lines.

If the normal recovery procedure is ineffective, the pilot should reach for the A line risers and push forward, or pull down gently, in order to lower the angle of attack of the leading edge. If a speed bar is fitted, applying this should aid your recovery.

Stretch and shrinkage of lines occurs more rapidly if your paraglider often gets wet while being used, then dries out between flights. Flying in humid or coastal conditions, for example.

While it is time consuming for the authorised person to measure the lines during a WOF, it is of critical safety importance – so allow plenty of time to have this check done. You can contact your aircraft's manufacturer for the correct line length charts for your particular wing.

Dominic Eller, Paragliding Safety Officer for the Southern Hang Gliding and Paragliding Club, says the lines must be measured with five kg of force applied to them.

"There is about 10–30 mm of allowable difference, depending on the manufacturer. If the lines have all become longer or shorter at the same rate, then there will be no trim problem. But this is almost never the case. The front lines stretch, and the rear lines shrink", says Dominic.

An alternative to measuring the lines is to flight test them, but only a handful of people are qualified to do this in New Zealand. Flight testing requires still air, a lot of height, and at least 3 to 4 stalls to reach a valid conclusion. Dominic says that this provides a holistic appraisal of the glider's overall trim characteristics.

"It is of the upmost importance that your brake lines are not too short. The normal amount of free play is 100 mm. This cannot be checked accurately through ground handling – it is best to check this in flight with the glider fully loaded. To perform this, the pilot slowly pulls the brake lines and watches the trailing edge line attachments for the first sign of tension pulling on an attachment. The pilot then looks at how far the brake has been moved. Approximately 100 mm should be seen.

"Even a brand new glider will be difficult to recover from a parachutal/steady state stall if the brakes are too short. It will also be prone to re-entering a full stall during a normal recovery from a full stall," says Dominic.

Put safety first and take care of your 'life lines'.

Civil Aviation Rule 106.17 *Aircraft Maintenance* requires all paragliders and hang gliders to hold a current warrant of fitness. The requirements for the issue of a WOF can be found in the NZHGPA's Organisation and Procedures Manual, available on their web site, www.nzhgpa.org.nz ■

After the **Quake**

Aircraft all over the country rely on Christchurch-based services and infrastructure to enhance flight safety. So what were the effects on civil aviation after a magnitude 7.1 earthquake hit the Christchurch area at 4:35 am on Saturday, 4 September 2010?

Christchurch is home to both a major international airport, and Airways New Zealand's Operations Centre. The Centre provides Air Traffic Control, Air Traffic Support, and Technical Support services to most of the country. Christchurch is also the site of the South Island's only primary surveillance radar and one of only two secondary surveillance radars.

Cause and Effect

The Airways Operations Centre suffered superficial cracks in the plaster finish of internal walls and a few ceiling tiles fell to the floor, but its structural integrity was not compromised. The mains power supply was lost for 4 hours and 46 minutes, but essential services were not interrupted due to an Uninterruptable Power Supply and a diesel-powered generator.

The Centre provides en route services for the majority of New Zealand domestic airspace, and approach services to Auckland, Wellington, Christchurch, and Ohakea, plus several other regional airports in the North Island. The Centre also provides flight information, National Briefing Office, and NOTAM Office services, as well as technical support services for navigation infrastructure.

All of these services were suspended for approximately 40 minutes while the operations centre was evacuated and contingency procedures implemented. There were no flights operating in the vicinity of Christchurch at the time of the earthquake, but services to five international flights inbound to New Zealand airports were affected. One of the five was inbound to Christchurch from Rarotonga – this flight diverted to Auckland.

Each of these flights was provided with traffic information by controllers at the Auckland Oceanic Control Centre, and landed without incident or significant delay.

The Cass Peak secondary surveillance radar on the Port Hills was damaged by the earthquake. The network router connections were broken and antennae alignment moved 0.05 degrees. This service was unavailable for 4 hours and 45 minutes while the network connections were restored and the azimuth alignment was corrected.

At Christchurch International Airport, the new Control Tower suffered no significant damage. Some superficial cracks were discovered during engineering inspections, but these were believed to be caused by the normal "settling" process associated with any new building site.

The Control Tower was evacuated shortly after the initial quake and aerodrome control services were reinstated from a contingency site in the airport's Rescue Fire observation tower.

Christchurch International Airport Limited (CIAL) closed the airport by NOTAM shortly after the initial quake, so the only aircraft that received a service from Christchurch Tower staff were helicopters operating in the Christchurch control zone to support Civil Defence.

Photo courtesy of Airways

There were an estimated 200 people in the terminal at the time. Most were in the international departure lounge, where duty free stores suffered considerable damage from broken bottles. All passengers were evacuated and moved to the International Arrivals Hall.

Power was lost in the terminals for 12 seconds while the standby generators came on line. A battery back-up kept the security access doors and security system working during this interruption, avoiding any security risk. All phone lines at the airport went down, and water and sewerage were only available due to a back-up pump. In the domestic terminal, the mezzanine floor near the playground and café became unsafe due to a significant amount of broken glass. A number of ceiling tiles also fell down. The atrium roof in the international terminal sustained large cracks but remained intact. A message was sent out via the media for passengers not to come to the airport and traffic was stopped from entering the airport vicinity.

The CIAL corporate office on the fourth floor of the car park building suffered heavy damage. As a result the Emergency Operations Centre was not accessible.

A visual runway inspection was performed by CIAL Facilities and Airport Fire Service personnel, looking for cracks, hollows, and lumps. These observations were then compared to the runway inspections they perform daily as part of CIAL's Part 139 runway inspection programme. Fulton Hogan then performed an electronic surface survey, known as longitudinal profiling, to determine flatness. This data was compared to previous surveys, and confirmed that both runway surfaces had not changed significantly.

Structural engineers inspected all terminal buildings. No major structural damage was found, none of the underground fuel tanks ruptured, and no one was injured by this event. After determining the airport was safe, compliant, and operable, the airport was finally given the all-clear to open by 1:30 pm.

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Damage sustained by Christchurch International Airport Limited's offices.

Photos courtesy of CIAL

» Continued from previous page

Lessons Learned

Wayne Blythe, Acting Risk Manager for Airways Corporation, says that Airways have identified a number of early lessons from this crisis and commenced work on implementing these to improve their lines of communication to key stakeholders, enhance access to information on the crisis, and clarify their crisis management roles.

Airways have also embarked on internal reviews of their crisis management plan and operational contingency plans. These reviews will take several months to complete and involve extensive stakeholder consultation.

Wayne says the Airways' response to this crisis was testament to the character and spirit of their people.

"We had a job to do. One group, the Team Leaders and Line Managers, focussed on the tactical aspects of providing ATC services; while the other group, the Executive and Safety Team, worked strategically. There were a lot of things for this group to consider, like what happens if there are more significant aftershocks, and whether we should be leaving Canterbury to operate from our Auckland contingency site? We were also thinking about the logistics of stress and fatigue, and managing what we don't know – how long the aftershocks will continue and what the emotional toll will be on staff.

"It was important, as an international business, that we were able to demonstrate strength and integrity. That despite the magnitude of the disaster, our systems, facilities, technology, and ultimately our people, stood up to what will likely be the biggest test they will face in their life time," says Wayne.

CIAL Manager of Quality and Security, Ford Robertson, says the airport company has learnt a lot from the experience and will continue to learn more as they analyse the events of 4 September 2010.

Civil Aviation Rules, Part 139 *Aerodrome – Certification, Operation and Use* requires all aerodrome operators to have an aerodrome emergency plan. Most of the emergency situations covered in Christchurch's plan, however, involve aircraft accident or incident scenarios. What CIAL has learned is that an airport (not aircraft) related event, is more likely to interrupt operations. For example, both Auckland and Christchurch International Airports have experienced ruptured gas supply mains due to excavators digging trenches. CIAL's emergency plan has now been modified to accommodate airport events.

Part 139 also requires international aerodromes to establish an Emergency Operations Centre. Christchurch's Emergency Operations Centre was rendered unusable after the earthquake. Ford Robertson says they now have a 'go-to' bag with essential data, contact details, and equipment, stored outside the EOC, and always with the operations manager on duty.

"We have now established a Crisis Management Team or CMT, with specific roles, yet no specific name attached to those roles. This means that when personnel make it to the airport, they can be assigned roles and form the CMT. As more personnel arrive, the roles may be reassigned. Each role has a checklist, so that anyone can pick up that role to start with, and it can be easily handed over if necessary," says Ford.

The earthquake also illustrated how important disaster recovery and crisis management exercises are in preparing for a real response. Having completed a surprise airport-related crisis management exercise earlier in the year, CIAL was well prepared for the ramifications of the earthquake, such as a temporary loss of water supply, power, and communications.

"Effective communication within the CMT, and to stakeholders, is crucial for successful management of a crisis. In the first 30 to 40 minutes you are on your own, and the general public look to the aerodrome operator, pilots, police, firemen, in fact anyone in uniform, to lead them in an emergency," says Ford.

Given the scale of this event, civil aviation in New Zealand experienced relatively minor disruptions on 4 September 2010. This was in no small part thanks to Airways and Christchurch International Airport enacting their emergency procedures quickly and efficiently. In doing so, they ensured that aviation safety and security was never compromised.

TIBA

Traffic Information Broadcasts by Aircraft

The pink pages in *AIP New Zealand* Volumes 1 and 4, specifically ENR 1.15–13 to 20, explain what pilots should do in the event that the Airways Operations Centre in Christchurch is evacuated, or if air traffic services are disrupted for any other reason. The recent earthquake in Christchurch is a timely reminder of how important it is for pilots to be familiar with this information. ■

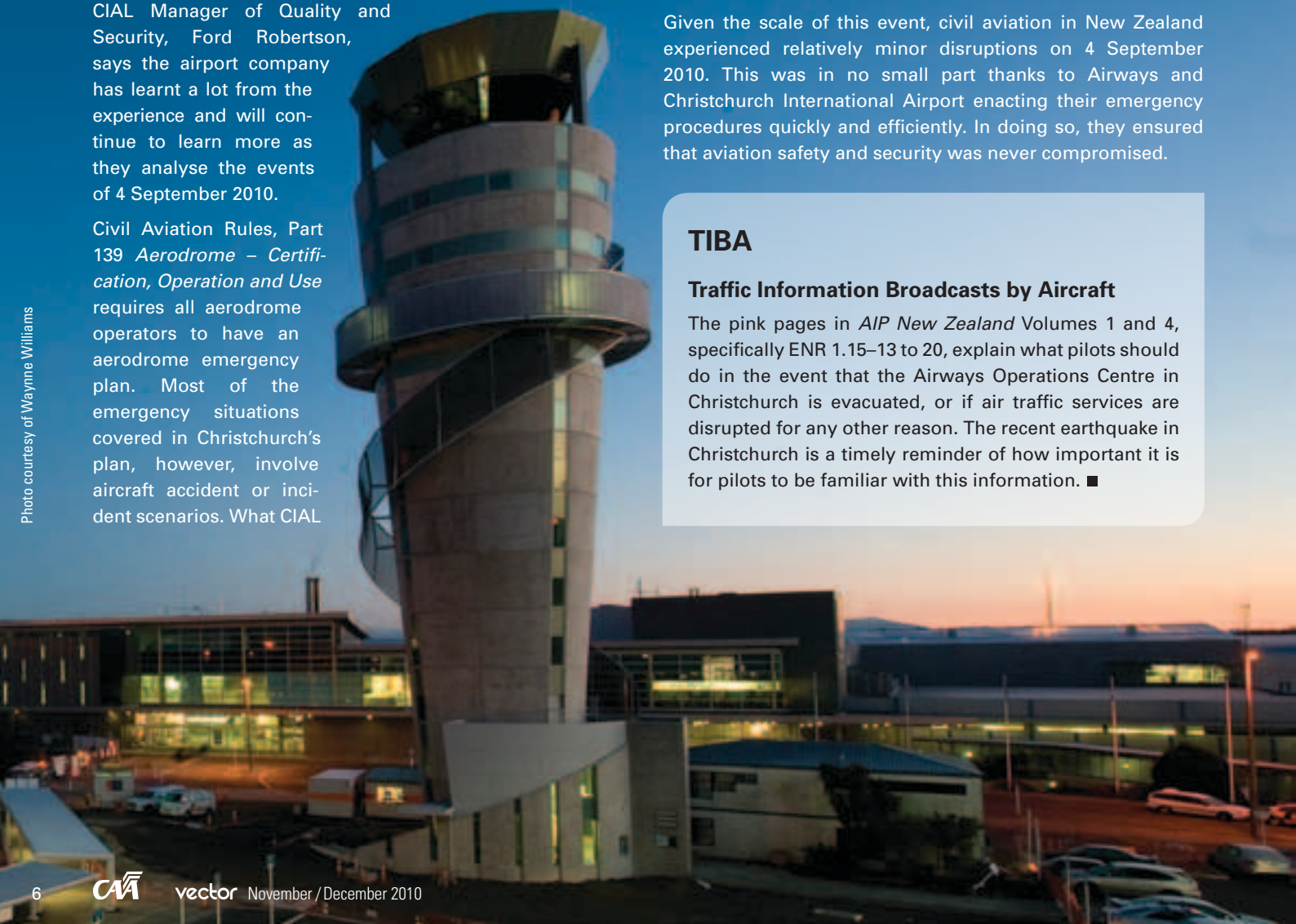

Photo courtesy of Wayne Williams

Don't Swing It!

If your Continental engine's starter motor runs when you turn the key, but the aircraft's propeller does not rotate, don't get out and swing it by hand.

CAA safety investigators have noted at least eight cases of starter adapter clutch spring failures since 2005. The fault affects Continental engines fitted with part number 643259 TCM starter adapters (typically found on the Cessna 180, 182, 185, 206, 207 and 210).

When the battery is low (perhaps after being hangared over winter), attempting a start can cause the engine to kick back, breaking the starter adapter clutch spring. In 1992, TCM starter adapters were modified and an outer barrel that contained the spring was removed.

Without this protection, broken spring fragments have the potential to cause foreign object damage.

Once a spring has broken, hand-swinging the propeller to get the aircraft started can cause the broken spring fragments to migrate forward and lodge into the accessory gear train, potentially causing catastrophic engine failure.

In one case this year, an engineer disassembled a starter adapter and found the clutch spring broken into three pieces. The fragments had moved forward after the engine was started by hand-swinging the propeller. They had damaged the crankshaft gear attachment bolts, which could have led to a complete loss of accessory component drive (such as the magnetos). The aircraft had been flown to the engineer for repairs, but thankfully the engine had not failed en route.

The giveaway sign for pilots of a broken spring is that the starter motor runs, but there is no propeller rotation. CAA safety investigators also note that the problem appears more likely in engines fitted with geared starter motors, rather than the direct drive version.

If you experience these symptoms, do not hand-swing the propeller. Consult your maintenance provider. ■

The giveaway sign for pilots is that the starter motor runs, but there is no propeller rotation.

Flying Safely this Summer

Summer is when many of us head back into the great blue beyond after winter hibernation. But before doing that, make sure you and your aircraft are ready. Here are some general tips and reminders.

Pilot

Currency

It's not just your aircraft – you also have to be current. Is your Biennial Flight Review (BFR) current? Completing the elements of a BFR can take a few days, so allow plenty of time to do this before your first planned flight. Get one of the free CAA reminder bookmarks that slot into your logbook to help you keep track of your currency, email: info@caa.govt.nz.

Are you current on type? Do as much armchair flying as you possibly can. Revisit the location of all the controls with your eyes closed. Mentally run through the emergency procedures and any skills that have become rusty through disuse. Take every opportunity to re-familiarise yourself with the aircraft's features and performance capabilities.

Medical Conditions

Is your medical certificate current? If it isn't, you may have to allow extra time to complete the tests required.

All medical conditions that might affect you in the short or medium-term, and any changes in existing conditions, have to be reported. According to Civil Aviation Rules, any pilot who experiences a known medical deficiency, an increase in a known medical deficiency, or a medically significant condition, for longer than seven days, should be examined and certified by a Medical Examiner before flying again.

Flight Planning

Some of the upcoming summer events are listed on the back cover of this *Vector*. While this alerts you to possible busy traffic areas, your flight planning should always include a check of the current *AIP Supplements* (www.aip.net.nz) and NOTAMs (www.ifis.airways.co.nz).

Make sure you have the latest information to use while flight planning. Is your *AIP New Zealand*, Vol 4, up to date? Are your charts up to date? (See page 24 for more information on new charts.)

As summer is always a busier time, make sure you are familiar with airspace categories and restrictions. Email info@caa.govt.nz for a copy of our free airspace poster and Good Aviation Practice booklet on *New Zealand Airspace*.

Weather Checks

Summer might be 'fine' weather, but it is still a time of gusty winds, aggressive thermals, and towering cumulus cloud formations.

Use MetFlight GA, http://metflight.metra.co.nz, to access both current and forecast weather conditions before every flight. Make sure you study area forecasts (ARFORs), as well as aerodrome TAFs and METARs, to see the big picture.

Fuel Requirements

Civil Aviation Rules specify minimum fuel requirements, but it is a good idea to always have some more for "mum and the kids". For rule details, go to www.caa.govt.nz, "Rules – Part 91 *General Operating and Flight Rules*" and refer to rule 91.305 *Fuel requirements for flight under VFR* and 91.403 *Fuel requirements for flights under IFR*.

General Tips

- Take daylight saving time into account while interpreting weather reports, and planning your flight. NZDT is now 13 hours ahead of UTC. The CAA *Weather Card* includes a UTC calculation table: email info@caa.govt.nz, if you would like one.
- Remember that high summer temperatures can adversely affect aircraft performance, so always carry out performance calculations.
- Always check the weight and balance.
- Alcohol and flying don't mix. See www.alcohol.org.nz for more information on how alcohol affects you.
- Dehydration is another issue in summer. Make sure you always have drinking water with you in the aircraft.

Aircraft

Documentation

Is all your documentation and paperwork up to date?

- Is the Flight Manual up to date?
- Has the Review of Airworthiness been completed?
- Is the Tech Log accurate?
- Have you kept up with all Airworthiness Directives requirements? To subscribe to the CAA's notification system, go to www.caa.govt.nz, "Airworthiness Directives" and follow the instructions.
- Has the routine inspection (100-hour check) been done?

Emergency Equipment

It is a good idea to check that all emergency equipment, including the

ELT, is in working condition. If your aircraft is fitted with an Artex ELT, you need to take the action outlined in a new Airworthiness Directive, DCA/RAD/54A Artex 406 ELT(AF), issued in September 2010. Go to the CAA web site, www.caa.govt.nz, "Airworthiness Directives – Components – Avionics", for more information.

Engine Care

If your aircraft is only flown occasionally, you need to protect the engine from corrosion. Corrosion happens when moisture from the air, and products from combustion, combine to attack the cylinder walls and bearing surfaces when the aircraft is not in use. Aircraft being operated close to oceans, lakes, rivers and in humid regions have a greater need for engine preservation than engines operated in more arid regions.

Every engine manufacturer has their own advice on how best to preserve engines. For example, Textron Lycoming recommends that air-cooled engines fly at least one hour per month (excluding taxi, takeoff and landing time). More detailed instructions on engine preservation are available on the Textron Lycoming web site, www.lycoming.textron.com.

Check your aircraft engine manufacturer's web site for information on how best to preserve your aircraft's engine.

Nests

Spring time is nesting time for birds. It is up to you to make sure that your aircraft is still a nest-free/bird-free zone. Check all aircraft cavities thoroughly, especially the tail cones and engine bays. Often, the only clues to the presence of birds in your aircraft are bird droppings and/or strands of grass.

General Tips

» Check the aircraft battery to see if it is fully charged. If you have a nickel-cadmium (Ni-Cad) battery, thermal runaway, although a rare occurrence, is another issue to keep track of (see page 10).

» Is the aircraft clean? Take it outside and give it a good wash and a clean – that is a good way to spot a possible problem.

» Keep your windscreen clean of bugs – keep a clean cloth with you to wipe the windscreen when required.

» Check the condition of your tyres to see if they are inflated and are at the right pressure.

» Have a good look at the brake discs for any corrosion of the joint between the disc and the drum that is bolted to the wheel.

Operational

Carburettor Ice

Generally, carburettor ice can be expected when the outside temperature is between -10˚C and +30˚C, with high humidity and visible moisture present. It is most likely between +10˚C and +15˚C, with a relative humidity of about 40 percent, so watch out for this over summer.

Continued over »

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Grass Runways

More grass runways are available for use in summer, but they could still be soggy. This will increase your takeoff roll, and affect your braking ability on landing. Make sure the runway length is sufficient, given these conditions.

Positively identify the grass runway you intend to use to avoid landing on a strip of grass between the sealed and grass runways, or between the grass runway and a grass taxiway.

Another point to keep in mind is that the amount of grass seed increases in summer. Grass seeds can get into carburetors, generally due to carb heat being selected to HOT while on the ground. So take extra care while operating on grass runways and taxiways.

General Tips

» Sun strike can happen even in summer, although it is more common in winter when the sun is lower in the sky. It is more likely during sunrise or sunset.

» Always remember that flying VFR is 'see and be seen' – keep a good lookout at all times.

Thermal Runaway

If you have a nickel-cadmium (Ni-Cad) battery, thermal runaway could be a possibility, especially during a long start, multiple starts and short sectors, and also at high ambient temperatures, or when the battery has not been used for a while.

During the start, there is a large drain on the battery, and it gets warm. Once the engine is started and the generator is recharging the battery, initially, a high current is put back into the battery increasing the battery temperature further. Under normal operating conditions, the current reduces as the battery is recharged and the temperature begins to drop.

However, if there are cells in the battery which have, over time, developed separator damage (a minute hole in the insulation that separates the cell plates), this can result in the charge rate remaining higher than normal, and even increasing, as those damaged cells present an increasing short circuit to the system. This in turn, leads to an increase in temperature, which in turn, leads to a further increase in current and so on, leading to a thermal runaway.

It is mandatory for all civil aircraft fitted with Ni-Cad batteries in New Zealand, to have some form of battery monitoring system. Details can be found under Airworthiness Directive DCA/ELECT/13 Nickel Cadmium Batteries – Modification, available on the CAA web site, under "Airworthiness Directives – Components – Electrical Equipment".

If a thermal runaway has occurred, the battery monitoring system will indicate this. The recommended procedure in this situation is as follows:

» Isolate the battery from the generator and continue to monitor the battery temperature.

» Land as soon as possible.

» Remove the battery from the aircraft. Beware of fumes and electrolyte leakage.

» Get the battery serviced by a battery servicing specialist.

To avoid thermal runaway, get your Ni-Cad battery serviced regularly, ensuring temperature sensors are tested. Do not try and jumpstart any aircraft if you have a discharged (flat) battery, as this will cause the generator to charge the battery at a very high rate – this will damage any battery. ■

Handmade Parts – Genuine or Bogus?

During aircraft maintenance, replacement or modified parts are often needed. In some cases, these can be manufactured by the engineer who is maintaining the aircraft, but there is growing concern that this provision is being abused.

Rule 21.303 *Replacement and modification materials, parts, and appliances* details which parts are able to be installed on a type-certificated aircraft. These include parts authorised by the type certificate holder, parts supplied by the holder of a Part 19F supply organisation certificate, a Part 145 maintenance organisation certificate or a Part 148 manufacturing organisation certificate, and standard parts, etc.

There is also a provision under 21.303(2) to allow a Licensed Aircraft Maintenance Engineer (LAME) or other suitably qualified person to manufacture replacement or modification parts, ***while maintaining the aircraft***. The parts must conform to the approved type design and be marked to indicate who made them and what manufacturing data was used.

Manager Aircraft Certification, Geoff Connor, says the intention of rule 21.303(2) is to allow engineers maintaining an aircraft to manufacture simple parts without compromising safety, where the manufacturer provides details. An example might be a section of aluminium skin, which has to be made to a pattern.

"These are OK, provided the engineer is working to acceptable technical data, with correct materials and correct critical dimensions," Geoff says.

"However, the engineer must manufacture the entire part themselves. They cannot subcontract any part of the manufacture, or order a collection of components from various other sources, assemble them and then fit them to aircraft.

"That kind of work must be done by a Part 148 manufacturing organisation, so the CAA can be assured the correct procedures are being followed and all rule requirements are being met."

Composite components, such as cargo pods and fairings do not easily fit within the intent of rule 21.303(2).

"Over the past few years, the aircraft certification unit has seen examples of this rule being stretched," Geoff says.

The industry can expect the CAA to be scrutinising this issue closely.

If it's a major change, it generally requires a Supplemental Type Certificate, and must be manufactured by a Part 148 manufacturing organisation. Similarly, even if it is a minor part, it can be installed to only one aircraft by the person who manufactured it, and who is maintaining the aircraft. If the part is being built and resold, or built in numbers, it requires a manufacturing approval under Part 148.

"Rule 21.303(2) is intended to allow for a simple repair or replacement to an individual aircraft by its maintainer under controlled conditions. It is not a back door for unauthorised manufacturing," Geoff says.

"Any part that doesn't comply with rule 21.303 is a bogus part. No one should be issuing a release to service certificate for an aircraft fitted with a bogus part." ■

Cracked Nuts

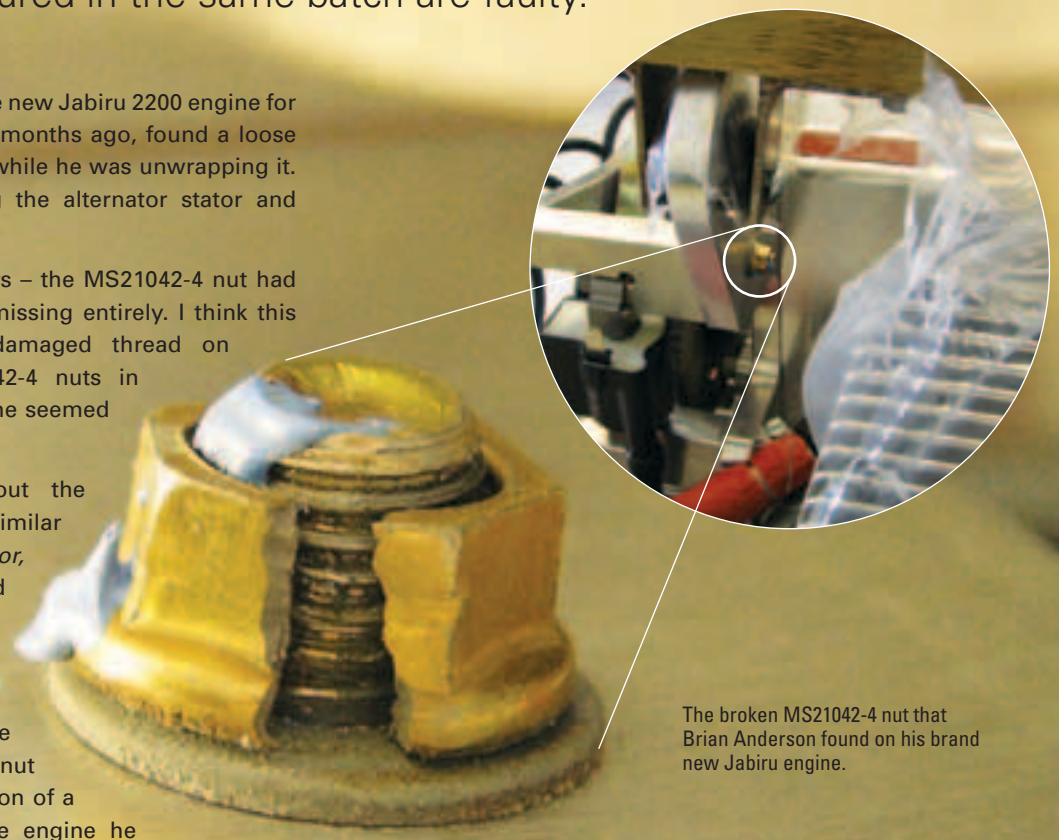
A cracked MS21042-4 nut has been found on a new Jabiru engine that was imported into New Zealand early this year. The last *Vector* reported a faulty MS21042L4 nut found on a Robinson R22 helicopter. Authorities in New Zealand, Australia, and the United States, are now investigating in case further parts manufactured in the same batch are faulty.

Brian Anderson, who bought the new Jabiru 2200 engine for his Flitzer aircraft a couple of months ago, found a loose nut on the rear of the engine while he was unwrapping it. This nut was one of four retaining the alternator stator and ignition coils.

"The bolt easily rotated in my fingers – the MS21042-4 nut had fractured and a piece was actually missing entirely. I think this fracture was precipitated by a damaged thread on the bolt. The three other MS21042-4 nuts in corresponding locations on the engine seemed to be undamaged," says Brian.

He initially contacted Jabiru about the cracked nut. After reading about a similar defect in an MS21042L4 nut in *Vector,* he contacted the CAA's Sport and Recreation Manager, Rex Kenny.

The MS21042-4 nut is the cadmium-plated variety of the MS21042L4, which is the lubricated version of the same nut. The cracked MS21042-4 nut that Brian found could be an indication of a similar problem in Australia, as the engine he bought was manufactured in Australia and shipped to New Zealand early this year.



The broken MS21042-4 nut that Brian Anderson found on his brand new Jabiru engine.

The CAA's Aircraft Certification Unit has since advised Australia's Civil Aviation Safety Authority (CASA) of the cracked nut found on the Jabiru 2200 engine. CASA have indicated they will be taking this up with Jabiru and will look at the need for wider advice.

The United States Federal Aviation Authority has already been advised on this issue, based on the previous defect report about the MS21042L4 nut on the R22. The CAA will also follow up with other authorities as required.

What You Can Do

Rex says it is important that all owners/operators check their aircraft thoroughly, especially all visible nuts, to see if any of them show signs of failure.

If any failed nuts are found, they should be replaced immediately. They should also be reported to the CAA on a CA005D form, available on the CAA web site, www.caa.govt.nz, "Forms".

For more information, contact Rex Kenny: rex.kenny@caa.govt.nz

Defect Reporting – Just Do It!

Every defect needs to be reported to the CAA, no matter how 'trivial' it may seem.

Brian Anderson recently filed a defect report for one cracked MS21042-4 nut. His report could be an indication that there may be a batch of faulty nuts.

"Sometimes, it may seem like the defect on your aircraft is something too trivial to report, but you never know..." says Brian.

Similarly, the problem with the MS21042L4 nuts in New Zealand came to light after a maintainer contacted the CAA to report the defective nuts.

These incidents highlight the value of the reporting system. Every individual report helps the CAA build the big picture and take action to improve safety performance.

Under Rule 12.59 *Investigation and reporting*, all defects must be reported to the CAA. This process is just about to get easier – see "Online Occurrence Reporting", page 13. ■

Online Occurrence **Reporting**

It's about to get easier to report your occurrences – the CAA is trialling an online reporting form for all occurrence reporting required by Part 12, including defects and bird strikes.

To use the online form, go to the CAA web site: www.caa.govt.nz/report.

You will receive an email after sending your report. The email will repeat all your entries so that you can check they are correct.

Although a trial, this is an acceptable means of reporting (you don't have to file an additional paper copy). However, it is not an acceptable means of notifying the CAA of an accident or serious incident as soon as practicable – this must still be done on the free phone number:

0508 ACCIDENT (0508 222 433).

We want to improve the system through this trial and your feedback. Send your comments and suggestions to:

michael.campbell@caa.govt.nz ■

www.caa.govt.nz/report

New Certification Procedures

The CAA has implemented new procedures to strengthen entry control into New Zealand's civil aviation system.

The new procedures will enhance the safety and security of the civil aviation system in the public interest.

Director of Civil Aviation, Steve Douglas, says all CAA operational staff have been trained in the new procedures, which affect every aspect of certification – applications for initial certificates, amendments to existing certificates, and renewals.

"The new procedures will reinforce the requirement that only those organisations that demonstrate they have the resources, systems and procedures in place to operate safely and in accordance with prescribed requirements, are allowed to enter or re-enter the New Zealand civil aviation system," Mr Douglas said.

"The procedures have required internal process changes for the CAA over recent months and will also have an impact on the aviation industry. The intent of these changes is to improve aviation safety through consistent and effective application of certification criteria. The criteria themselves have not changed. All aviation organisations are encouraged to read the details of the changes on the CAA web site."

Chief Operating Officer Graeme Harris says the new procedures improve the consistency with which the CAA performs its certification function and provide increased transparency.

"The improvements are part of a wider work programme aimed at rectifying deficiencies reported by the Office of the Auditor-General following their recent audit of the CAA's certification and surveillance functions.

"All incomplete applications will be returned to the organisation, and the certification process will not begin until a complete application is received. The onus is on the organisation to submit a complete and compliant application in a timely manner," Mr Harris said.

"The application and the supporting documents should reflect a systems approach, and not be a disjointed collection of procedures designed only for compliance. An exposition should reflect a well thought out approach to achieving safety through a set of linked and complimentary processes and procedures."

Applications must also include a completed rules compliance matrix at both initial certification and renewal. This should be maintained during operations to ensure the organisation's exposition remains compliant with the current rules.

Senior Person interviews are an opportunity for the nominated person to demonstrate they have the right attributes, knowledge, and resources to carry out their role effectively. These interviews will be audio-recorded and will be available to the organisation.

During initial certification, organisations must satisfactorily demonstrate their operation to the CAA as much as practicable, before being granted a certificate. This is consistent with the International Civil Aviation Organisation's approach to certification.

"Renewal means a 100 percent check of the organisation, similar to initial certification, as required by the Civil Aviation Act. It is not just a case of once over lightly. During renewal, any identified breach of the existing exposition will be raised as a Finding, and a new certificate will not normally be issued until all Findings are closed."

New certificates will normally be issued for two years, and renewals for five years (with possible adjustments for CAA workload). At the end of certification, a surveillance plan will be tailored for the organisation, based on its risk profile.

New applicants should see the CAA web site in the first instance. Large operations, or existing operations contemplating a significant change, are encouraged to request a pre-application meeting with the CAA.

The CAA is available to provide advice on the changes.

Learn More

See the CAA web site:
www.caa.govt.nz "What's New" ■

Photo courtesy of Gavin Conroy

Standard, but is it Safest?

When it comes to flying, one size does not fit all.

Ab initio and PPL pilots are trained to carry out procedures such as standard overhead joins, precautionary landings, and forced landings, to an exact plan. We then practise these over and over again, each one a carbon copy of the one before. This standard plan, however, will not exactly fit every situation you find yourself in.

Influences such as traffic, terrain, cloud, wind, and turbulence, can make an element of the 'standard' plan unsafe. Pilots should adapt their plan to suit the situation they are faced with.

Standard Overhead Joins

A standard overhead join is not always the safest way to join at an unattended aerodrome – nor can you assume a 'right to join' if you begin one. It is just one option you have available to you.

Every time you approach an aerodrome for an overhead join, run through a mental checklist to figure out if it is safe to use this procedure, considering all the variables. Here are some examples:

- Check the ATIS and *AIP New Zealand*, Vol 4 plate for any advice on overhead joins.
- Is an opposing circuit in use, for example, during cross-wind training, or simultaneous parallel operations?
- Are helicopters carrying out auto-rotation training?
- Is gliding in progress?
- Is parachute dropping in progress?
- Will the airspace and cloud base allow you to fly 500 feet above circuit height?

The first part of a standard overhead join is designed so that pilots can safely observe the wind direction on the ground, and any traffic below, while keeping you separated from circuit traffic by 500 feet. Make sure you maintain this height accurately. If you are less than 500 feet above circuit height, this will erode an essential safety margin.

At this point, only continue with an overhead join if there is no potential for a traffic conflict while descending to circuit height. If you see or hear any traffic on the 'non traffic side' of the runway you have chosen to use – do not descend in accordance with the standard overhead join plan. Either remain overhead and communicate your intentions until sequencing can be achieved safely, or consider vacating the overhead area to join downwind or

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» Continued from previous page

straight-in, descending to circuit height well away from any traffic in the circuit area. Remember to communicate your position, height, and intentions, once you have observed the situation below and made a decision.

The only times it is not safe to carry out the very first part of an overhead join (circling overhead 500 feet above circuit height) would be if the ATIS or *AIP New Zealand* specifically advises against it, if you know parachute dropping is in progress, if the weather will reduce your 500 foot safety buffer, or in areas such as Feilding and Taieri where airspace restricts the overhead join height.

If you can ascertain the traffic situation and prevailing conditions by other means, it is not necessary to join overhead. For example, by listening to the ATIS, hearing other aircraft already established in a particular circuit, and visually sighting them. Remember, however, that NORDO aircraft may be operating at an unattended aerodrome, so a good lookout is your most important tool for ensuring any joining procedure is conducted safely. Sight other aircraft and apply the right of way rules accordingly. Just because you don't hear any calls does not mean there is no traffic and you have right of way.

Once you have joined the circuit, if another aircraft lines up on, or joins for, a different runway, then communicate your position, height and intentions. Carlton Campbell, CAA's Training Standards Development Officer, says that if a potential for conflict occurs, pilots should apply common sense and initiative.

"Either slow down, accelerate, extend, or delay turns. Aircraft may use multiple runways simultaneously, providing right of way rules are applied, visual separation can be achieved, and effective two-way communication is maintained at all times."

If you feel uncomfortable or confused, however, avoid the traffic by initiating a go-around. Communicate your position, height, and intentions again, and if necessary, vacate the circuit area, and reassess the situation before returning to rejoin. Don't become fixated on the plan you had for landing and stick to it, no matter what.

When joining, maintain situational awareness and keep your options open – continually reassess if your plan is still the safest option.

Standard Emergency Plans

Forced landing and precautionary landing procedures are drilled into pilots, so ideally, they can be recalled and carried out almost instinctively in a real emergency. In a stressful situation like this, it is helpful to have a well thought out and practised plan you can call on.

There may be instances, however, where it is not safest to carry out every single aspect of your emergency plan exactly as you have always practised it. It is important to think about how best to apply it to the current situation and conditions you are facing. Your ability to prioritise will depend on your experience and training.

Peter Kirker, CAA's Manager Safety Investigation, says that emergency plans should not be so rigidly taught that they could cause unnecessary risk.

"The standard plan for emergency situations should be applied differently

Photo courtesy of Gavin Conroy

for different levels of experience. A solo student will carry out the emergency procedure methodically as taught, however a B Cat instructor may adapt the procedure to better improve the situation or outcome from a risk and safety perspective," says Peter.

Carlton Campbell says an instructor in this situation may, for example, "fly a right hand pattern for a crosswind landing, to ensure that the base leg onto finals has an into wind approach, thereby making judgement easier, compared to the higher groundspeed you would experience with a tail wind on base."

Good training should equip pilots with the ability to think outside the square and provide them with opportunities to practice this.

While flying in the mountains, terrain, sink, or turbulence, may mean it is best to fly a right hand circuit to land instead of a left hand circuit as you have been taught, or may mean you cannot place your 1500 foot area and 1000 foot point where you are used to. This may mean extending on base to over-centre the approach, taking flap earlier, later, or considering side-slipping if you are hot and high (subject to flight manual recommendations) before committing to any flap application. The standard pattern you have practised flying to a touchdown point may not be possible. Also, the flight manual best glide speeds you have learned are calculated for still air only. You may have to adjust your glide speed for headwinds and turbulence.

Always keep an open mind. Think about the variables of traffic, terrain, cloud, wind, and turbulence, and if necessary, adapt your 'ideal' plan to fit the conditions and circumstances. Your instructor can provide advice and training.

At all times, fly the aircraft first. Only work through trouble checks and checklists if you have spare mental capacity and time. It is easy to become fixated on these details at the expense of the big picture. What really matters is that you manoeuvre the aircraft to reach your touchdown point safely. Don't let yourself be distracted from this goal by cockpit drills and radio calls. Remember the old adage, Aviate, Navigate, Communicate.

A few years ago, the pilot of a PA 32 encountered deteriorating weather conditions on a cross-country flight. The pilot carried out a precautionary landing, but he was so fixated on flying a beautifully spaced standard pattern to his selected touchdown point, and carrying out cockpit checks, that he forgot to land into wind. He remembered the details and drills, but didn't think about the big picture. The aircraft could not stop in the distance available, went through a wire fence, and bounced through a 4–5 metre wide ditch.

Standard Levels

Don't stick to the VFR cruising levels if it means you will have to dodge cloud at that level or fly over 8/8ths of cloud. Flying at a non-standard altitude is safer than either of these two options.

Standard Routes

Don't stick to your usual familiar route if the weather conditions are not favourable. It is safer to take an alternative or longer route with better weather, even if you have never flown it before.

This was a factor in a fatal accident involving a Eurocopter EC120B which crashed 6 NM south-west of Raglan in 2005. The pilot planned to fly a familiar route from Papakura to Queenstown via the West Coast of the North Island. Even though the weather along some of this route was forecast to be less than VFR minima, the pilot did not appear to have considered better weather options in the central and eastern areas of the North Island.

Summary

Peter Kirker says that in order to stay safe, a lot comes down to situational awareness and ensuring you provide as many safety nets as practically possible. What we call good old 'airmanship'.

Always think about what the safest option is. This may be the procedures you have been taught, and practised, but every situation you encounter will be different, so engage your brain first, rather than immediately switching to 'automatic pilot'.

The introduction of threat and error management training and assessment in July 2010 has provided another tool for improving airmanship. By actively considering any threats to the safety of your flight before you take off, you can prepare mitigating strategies or actions to minimise threats or eliminate them before they occur. Carlton says that applying this approach in the air as well, and considering threats proactively, will ensure we are best prepared to mitigate their effects and consequently improve the safe outcome of our flight or standard procedure. ■

Who's Where at **Queenstown**

Queenstown's seven air traffic controllers have taken to Airways' new surveillance technology, Multilateration, like ducks to water.

Multilateration (MLAT) has been operating in Queenstown since early August. For the past four months, controllers have been operating a kind of dual or 'see and check' system using the technology.

The MLAT screen shows controllers where traffic is in the Queenstown area (along with a lead line showing where the traffic will be in two minutes) using transponder signals. Receivers are positioned around Queenstown. The time transponder signals take to reach each receiver is measured and used to calculate the aircraft's position.

Senior Controller Operations Ben Macmillan says while aerodrome controllers' main job will always be to look out the window, the new MLAT screen allows them to confirm their plans and improve the service they give.

"It is a reassurance that something you've set up, such as a separation, is going to work. You knew it would anyway, but with MLAT you can see it in front of you, so you can move your thinking on to other potential conflicts," Ben says.

In this initial phase, any information that controllers see on the MLAT screen is being confirmed, either with the controllers' eyes or with pilot reports, before it is used.

"So pilots probably won't have noticed much difference so far. In fact, they're probably wondering why we're asking for position reports when we can see it on the screen," Ben says.

Controllers will eventually be able to act directly from the MLAT information.

"In that phase, pilots will notice a distinct drop in the amount of talk on the radio," Ben says.

"At the moment Queenstown has quite a congested frequency."

Some pilots have already benefitted from the new system.

"We've already had two people get lost, which we were able to resolve almost immediately. Our airspace reaches 50 NM to the north east, and we can't see the majority of it. So in the past when someone got lost, we'd have to ask them what they could see to work out where they were. Now we can pinpoint them and offer some suggestions," Ben says.

Photos courtesy of Airways

Pilots may also have noticed more accurate traffic information is being given.

"In the past, we might have been able to say that traffic was 'a 172 at Arrowtown at 3000 feet'. Now we can say it's 'in your ten o'clock position, three nautical miles out at 3000 feet'. The pilot comes straight back with 'traffic in sight'."

Improved position accuracy of local traffic also provides significant safety support to airline traffic when arriving and departing at Queenstown.

There have been benefits for controllers too.

"We're not radar controllers, this is just a tool to help, but it is graphically representing the constantly updating picture that we've got in our heads.

"A particular benefit for Queenstown controllers, is that it can be quite hard to sight traffic against the terrain, or a white aircraft against snow. With the MLAT display, you know where they are and at what altitude, which makes things much easier to spot. You're still looking out the window, but things are easier to see.

"It's a definite improvement for us. We had the screen down for maintenance the other day and that helped us appreciate the contrast. The extra information is helping us do the job safely."

Learn more: See *Vector* Sep/Oct 2008 for more on how the MLAT technology works, available on the CAA web site under "Publications". ■

Controllers on duty in the Queenstown tower.

A technician installs a solar panel to the Mount Nicholas MLAT sensor at Queenstown.

What I learned about flying from this

Skydiving operation pilot, Sarah Collinson, says no matter how often you get the same problem happening in an aircraft, always treat it as an emergency.

In July this year, Sarah was forced to land a Cessna 172 on the ring road circling the airport at Whangarei, after losing power.

Descending through 4000 feet after dropping parachutists, the aircraft started running rough, with an rpm of about 1200. When things didn't improve, Sarah had very little time to choose between trying for the runway, and ditching in the sea.

"I've thought about it so many times since then. I think if I'd gone for the sea, I'd probably be sitting here wondering if I should have gone for the runway," Sarah says.

Rough running was not unusual in the aircraft.

"Four out of five times during a steep descent, it'd get a bit of carb icing which would last through about 500 to 1000 feet and then clear. When I was first getting used to that plane, I'd straighten it out to best glide speed, run through the safety checks and start looking for my landing spot when it got a bit of carb icing. But it always came right pretty quickly," Sarah says.

When the carburettor icing started on the day of the accident, Sarah was not initially alarmed.

"I kept expecting it to clear, and I'd got quite a bit lower by the time I realised that it wasn't going to come right."

With her focus on resolving the problem, Sarah did not make an emergency call.

"The push to talk button's also at the bottom of the control column, so at

the time I opted not to use it and to keep a proper hold on the control column."

By now Sarah was aiming for the runway with a spluttering engine. She might have made it, but things got worse – striking bad sink on finals, she lost more height and at about 400 feet, the engine cut out.

Sarah managed to make the road, colliding in a nose down attitude. She suffered a cut to her face requiring stiches, but was otherwise unharmed.

Examination of the aircraft showed that the carburettor heat shroud which collects warm air from around the engine exhaust was broken and was not in place, and the carburettor heat would not have been working effectively.

"Everyone I spoke to said this plane seemed to be more prone to carb icing than others, but it always cleared, so I got used to it. I think now, no matter how often a fault repeats, you should always treat it as an emergency," Sarah says.

"If I'd straightened out to best glide speed at the first sign of trouble, and started heading for the airport, I'd have given myself a lot more height to work with."

Vector thanks Sarah Collinson for her willingness to share her experiences for the benefit of others. Note: Pilots should always identify recurrent mechanical issues however subtle (such as a tendency to suffer carburettor icing), in the aircraft's technical log. ■

New HSE Audit Material

The CAA's Health and Safety in Employment (HSE) Unit has updated its health and safety systems material, based on the new audit standards that came into effect in January 2010.

The updated material includes:

» a new hazard management booklet (guidance on the process of identification, assessment, and controlling of hazards),

» information to help operators build their health and safety system, including a sample manual,

» a hazard register, and

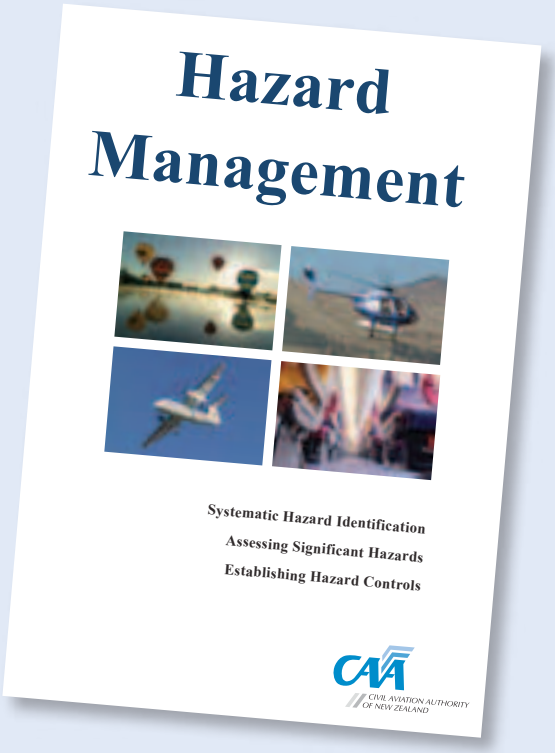
» updated HSE audit standards.

All the material is available for viewing and downloading on the CAA web site, www.caa.govt.nz, "Health and Safety – HSE Information and Guidance". These documents can be used as templates to set up your health and safety audit documentation.

Taking the Lead

The HSE auditors have been actively encouraging operators and their chief executives to take the lead in Health and Safety Management (HSM), because this improves the standard and competence of HSM and helps lift the health and safety culture of an organisation. The HSE Unit expects both the company chief executives and the health and safety coordinators to be familiar with their HSE obligations and responsibilities.

Operators employing contractors for health and safety management systems and development need to ensure that the contractors have the relevant qualifications, experience and knowledge of New Zealand laws. A New Zealand Institute of Safety Management perspective on this subject is available in the Health and Safety page of the CAA web site, see "Other Information and Links – Employer be aware". ■



Airspace Enquiries

All enquiries relating to airspace, or to the New Zealand Air Navigation Register, should be directed to the Aeronautical Services Unit: aero@caa.govt.nz.

Len Wicks, former Aeronautical Services Officer (ATS), has taken up a post with the International Civil Aviation Organisation in Bangkok, so please send any enquiries to the email address above. ■

Spur-winged Plovers Grounded!

The Spur-winged Plover is responsible for more than a third of all bird strikes in New Zealand.

But here's the good news – the Department of Conservation recently changed the bird's status from absolutely protected to not protected, which means they can now be disturbed, hunted or killed.

The Spur-winged Plover can normally be identified by its bright yellow beak and wattle (fleshy fold of skin) near its eyes. It also has a hooked spur on its carpal (wing joint).

Spur-winged Plovers are found throughout New Zealand, especially in Southland, coastal Otago, Canterbury, Manawatu, and southern Wairarapa. They are also known as the Masked Plover or Masked Lapwing (scientific name: *Vanellus Miles*).

For more information, contact Michael Gee, Senior Policy Analyst, Department of Conservation: mgee@doc.govt.nz

Photo courtesy of Department of Conservation

Word for **Word**

The Civil Aviation Rules set out the wording that Licensed Aircraft Maintenance Engineers (LAMEs) must use when completing and signing off maintenance work records and maintenance logbooks for Release-to-Service, Duplicate Inspections, Review of Airworthiness, and operational check flight Release-to-Service documents.

Maintenance Controllers and LAMEs should be aware that no other wording on work records and maintenance logbooks is acceptable. Being non-compliant with the Rules and customising the wordings may also have insurance implications for the aircraft.

If the correct wording is not used on maintenance work records or maintenance logbooks, then CAA Airworthiness Inspectors will issue Findings to the operator or LAME concerned.

The exact wording for each of these maintenance documents is available under specific Civil Aviation Rules, as follows:

Rule 43.103(c)(1) – Operational check flight Release-to-Service statement.

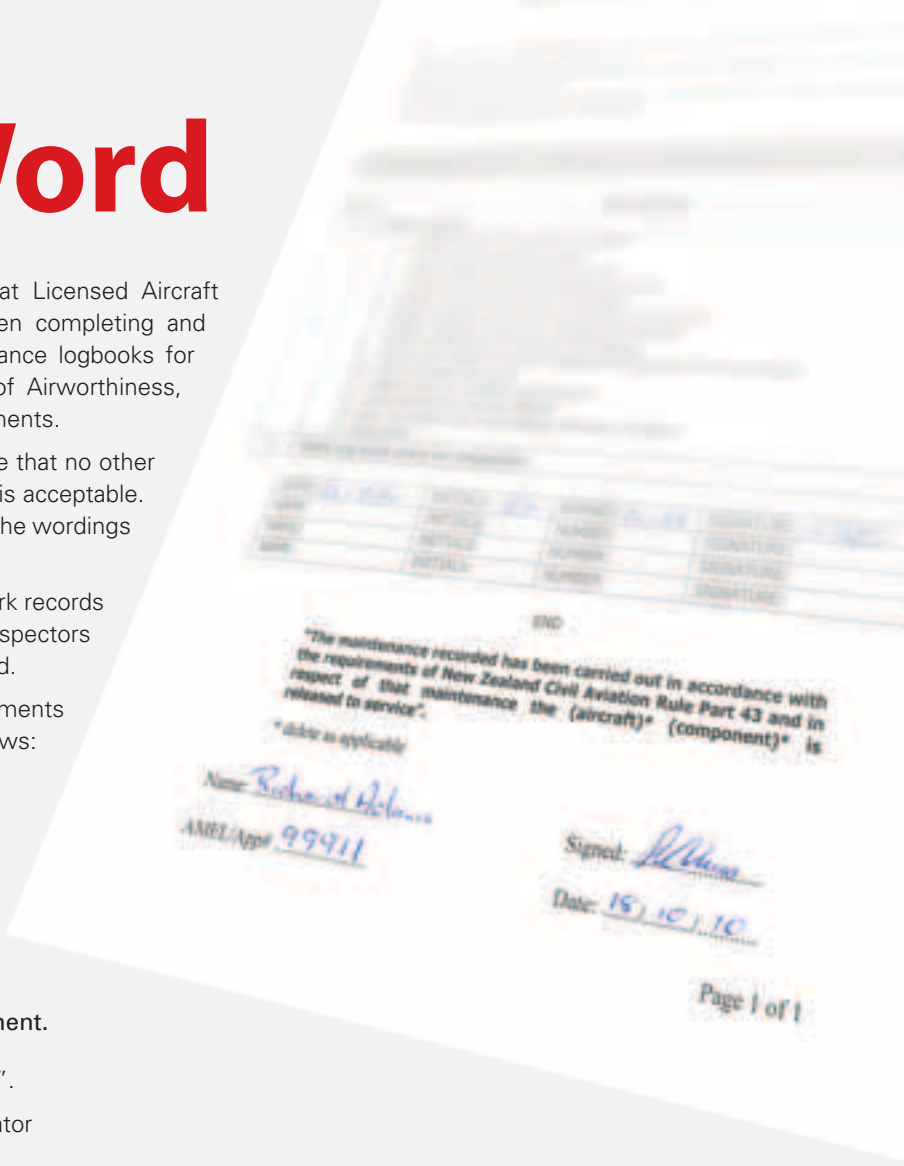
Rule 43.105(a)(5) – Release-to-Service after maintenance statement.

Rule 43.113(c)(3) – Duplicate safety inspection statement.

Rule 43.155(a)(1) – Review of Airworthiness statement.

View the complete rules at www.caa.govt.nz, "Rules".

For more information, contact Airworthiness Coordinator John Bushell: john.bushell@caa.govt.nz ■



Flight Testing in Aeroplanes

Whether an aircraft can be used for a flight test or not depends on the Aircraft Flight Manual and its Certificate of Airworthiness (C of A).

		Type of Flight Test		
		Licence issue	Instrument rating issue or renewal	Aerobatic rating issue or renewal
Airworthiness Certificate	Standard Category	Yes	Yes	Yes
	Special Category – Light Sport Aircraft	Yes	No	Yes, if the flight manual does not preclude aerobatics or the specific manoeuvre
	Special Category – Amateur-built	Yes, if the candidate is the owner	Yes, if the candidate is the owner and the Airworthiness Certificate's operating limitations allow IFR flight	Yes, if the candidate is the owner and the Airworthiness Certificate's operating limitations specifically approve the manoeuvre and state the entry speed
	Special Category – Exhibition	Yes, if the operator is approved		
	Special Category – Limited	Yes, if the operator is approved		

These requirements can be found on the CAA web site, www.caa.govt.nz, under "Pilots/Instructors and Examiners".

A Reminder from **Personnel Licensing**

Please get your licence issue or amendment applications in early if you require your licence before the Christmas/New Year holidays, as this is a very busy time for the Civil Aviation Authority's Personnel Licensing Unit. The last day for the issue of licenses in 2010 will be 24 December. Licences will again be issued from 10 January 2011 onwards.

Licence applications are dealt with on a first-in, first-processed basis. Calling the Personnel Licensing Unit does not give your application greater priority, and only takes staff away from processing the applications.

If applying for a new licence, you will need to satisfy the Director of Civil Aviation that you meet the fit and proper person (FPP) requirements of the Civil Aviation Act. Obtaining the necessary information can take several weeks. As a rough guide, allow six weeks before your flight test to complete the FPP process.

New-look Licences

The new-look CAA personnel licences are now being issued for Pilots and Engineers. Existing licence holders do not need to change over to the new-look licences unless they wish to do so. The fee for this is $51.11, the same as the fee for a replacement licence.

For more information, go to www.caa.govt.nz, "Pilots" or "Maintenance Engineers". ■

Flight Plan Format Changes

New Zealand is going to implement a new flight plan format in 2012, based on ICAO recommendations. This is part of a world-wide implementation programme.

The changes are designed to support the future needs of aircraft with advanced capabilities, such as performance based navigation (PBN), and the requirements of automated air traffic management systems, such as reduced vertical separation minimum (RVSM).

The changeover will happen in a phased manner. Initially, domestic flight plans will be filed via IFIS under the new format from July 2012 onwards.

The format changes will have maximum impact on the Equipment, Surveillance, and Other Information fields, with the introduction of alpha-numeric codes to describe communication, navigation and transponder equipment, eg, Required Navigation Performance (RNP), and Automatic Dependent Surveillance (ADS-B, ADS-C).

An Aeronautical Information Circular (AIC) detailing the changes will be issued in mid-2011.

For further information, contact Stu Douglas at Airways New Zealand:

stu.douglas@airways.co.nz ■

Time to Order 2010 VNCs

Have you ordered your new set of VNC charts? If not, get in touch with the Aeronautical Information Management team at Airways on 0800 500 045, or visit their web site, www.aipshop.co.nz.

The new charts are effective 18 November 2010, and there have been quite a few changes since last year. In particular, a review was undertaken of all Low Flying Zones and Parachute Landing Areas, so make sure you are up-to-date with the current charts. ■

The CAA is **Moving**

The CAA will be relocating to the Wellington CBD in January 2011. Last day of business at Petone will be Friday 21 January 2011 and first day of business at the new location will be Tuesday 25 January 2011 (Monday is Wellington Anniversary Day).

This is a very convenient location for visitors, and in the January/February 2011 issue of *Vector*, we'll give public transport details and nearby parking locations.

Location: Level 15, Asteron Centre, 55 Featherston St, Wellington 6011

Postal: PO Box 3555, Wellington 6140

Tel: 0–4–560 9400

Fax: 0–4–569 2024

Email: info@caa.govt.nz

Web: www.caa.govt.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***
15 Nov 2010	22 Nov 2010	10 Feb 2011
23 Dec 2010	03 Jan 2011	10 Mar 2011
24 Jan 2011	31 Jan 2011	07 Apr 2011

Aviation Safety Advisers

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

Don Waters
(North Island)
Tel: 0–7–376 9342 Fax: 0–7–376 9350
Mobile: 027–485 2096
Email: watersd@caa.govt.nz

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

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

Bob Jelley
(Maintenance, South Island)
Tel: 0–3–322 6388 Fax: 0–3–322 6379
Mobile: 027–285 2022
Email: jelleyb@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)

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-GSV Slingsby T.65A Vega

Date and Time:	28-Jan-10 at 16:00
Location:	Burkes Pass
POB:	1
Injuries:	0
Damage:	Substantial
Nature of flight:	Private Other
Pilot Licence:	PPL (Aeroplane)
Age:	61 yrs
Flying Hours (Total):	500
Flying Hours (on Type):	13
Last 90 Days:	23

During a cross country flight the glider lost altitude, so the pilot attempted an out landing. The landing approach was misjudged, the glider landed short of the paddock, impacted a fence, and was substantially damaged.

CAA Occurrence Ref 10/283

ZK-IDB Bell 206L-1

Date and Time:	4-Feb-10 at 14:00
Location:	Whangarei
POB:	1
Injuries:	0
Damage:	Destroyed
Nature of flight:	Private Other
Pilot Licence:	PPL (Helicopter)
Age:	49 yrs
Flying Hours (Total):	672
Flying Hours (on Type):	426
Last 90 Days:	13

The helicopter slid forward on its raised pad during landing, after a shorter approach than normal. The pilot attempted to re-lift but the main rotor blades struck the tail boom severing the tail rotor gearbox from the boom. The helicopter rolled to the left, falling off the platform and striking the ground.

CAA Occurrence Ref 10/379

ZK-HTD Robinson R22

Date and Time:	11-Mar-10 at 20:15
Location:	Reefton
POB:	2
Injuries (Minor):	2
Damage:	Substantial
Nature of flight:	Private Other
Pilot Licence:	PPL (Helicopter)
Age:	45 yrs
Flying Hours (Total):	253
Flying Hours (on Type):	235
Last 90 Days:	47

The pilot was operating the helicopter on a private scenic flight in the Paparoa ranges, west of Reefton. He had slowed the helicopter to view a black mark on the hillside, when he encountered a downdraft. This resulted in a low rotor RPM situation. The pilot was unable to recover the RPM and the helicopter descended onto the hillside and rolled over on its right side.

CAA Occurrence Ref 10/871

ZK-HVC Robinson R22 Beta

Date and Time:	17-Mar-10 at 7:45
Location:	Wanaka
POB:	2
Injuries:	0
Damage:	Substantial
Nature of flight:	Private Other
Pilot Licence:	PPL (Helicopter)
Age:	33 yrs
Flying Hours (Total):	2000
Flying Hours (on Type):	1500
Last 90 Days:	80

On takeoff during a helicopter sling operation involving a load that was double stropped, the pilot noticed at approximately one foot AGL that the second strop was hooked over the rear of the left skid.

The collective was lowered to reposition the aircraft, however, this caused the strop to tighten further against the load and the aircraft to yaw to the right. As left pedal was applied a loss of Rotor RPM was induced, causing the aircraft to settle to the ground.

The pilot attempted to release the load but this was unsuccessful due to the configuration of the strops. Unable to maintain position the aircraft slowly rolled over backwards and then continued to roll down hill. The persons on board were uninjured.

CAA Occurrence Ref 10/944

ZK-IMS Aerospatiale AS 350B2

Date and Time:	6-May-10 at 14:30
Location:	Fiordland
POB:	0
Injuries:	0
Damage:	Substantial
Nature of flight:	Other Aerial Work
Pilot Licence:	CPL (Helicopter)
Age:	60 yrs
Flying Hours (Total):	12210
Flying Hours (on Type):	5000
Last 90 Days:	197

The pilot landed the helicopter so he could attach a long line to carry out a lifting job. While the pilot was outside the machine, a gust of wind caught the tail, causing it to pivot. The left skid moved onto lower ground causing the machine to roll over on its side.

CAA Occurrence Ref 10/1722

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

Diamond DA 42

Clutch

Part Model:	Centurion TAE 125-02
Part Manufacturer:	Thielert
Part Number:	05-7211-K006002
ATA Chapter:	8500
TSI hours:	74.2
TTIS hours:	227.5

The pilot was conducting an asymmetric approach and missed approach with the right engine simulated as failed. The missed approach was initiated, with full power set on the right engine and the gear raised. Approximately 5 seconds later a significant loss of power was apparent on the right engine. Both throttles were closed, the gear lowered, and the aircraft landed on the remaining runway.

Maintenance investigation revealed that the right hand engine had suffered an in-flight clutch failure. The clutch was removed and replaced and the manufacturer was notified. Thielert Aircraft Engines identified a manufacturing fault with a small batch of clutch friction disc springs which could allow the clutch to slip. Thielert Service Bulletins TM TAE 125-0021 and 125-1011 were issued on 9 June 2010 identifying and recalling a limited number of clutch assemblies. In response to the Service Bulletins, CAA Airworthiness Directive DCA/THIE/20A Clutch Assy Inspection and Replacement was issued effective 15 June 2010.

CAA Occurrence Ref 10/1187

Cessna 172

Oil filter adapter

ATA Chapter:	7920
TSI hours:	20
TTIS hours:	2285

While in the cruise, the pilot noticed that the engine oil pressure was starting to reduce accompanied by increasing oil temperature. The pilot attempted to make a landing at the nearest aerodrome which was approximately 7 NM away, however when 5 NM from the aerodrome the engine seized. An attempt was made to glide to the runway with the assistance of a 20 kt tail wind but the pilot was forced to land on the beach just short of the threshold.

Maintenance investigation found that the engine oil filter adapter assembly had become loose allowing a total loss of engine oil followed by seizure of the engine. CAA investigation determined that as the engine was fitted with a Cessna oil filter adapter, there was a requirement to carry out DCA/CON/174 Oil Filter Adapter Assemblies – Inspection. This AD requires the security of the oil filter adapter to be checked every time the spin on oil filter is replaced.

When the oil filter was changed approximately 20 hours prior to this event, DCA/CON/174 was not carried out at that time. Aircraft owners are reminded that they must ensure all applicable airworthiness directives have been complied with. This is required by CAR 91.603 (a)(2).

CAA Occurrence Ref 10/1083

Bolkow Bo 208 C Junior

Cylinder

Part Model:	0-200A
Part Manufacturer:	Teledyne Continental
Part Number:	641917
ATA Chapter:	8530
TSI hours:	8.8
TSO hours:	1708.9
TTIS hours:	5581.1

While in the cruise at 3000 ft, the engine suddenly began running rough. A mag check showed that the drop was even on each magneto. The pilot diverted to a private airstrip and landed without incident. During maintenance investigation a ground run was carried out and the number 4 cylinder was found to be cold. The rocker cover was removed and the rocker shaft and rockers were found loose. The rocker shaft bosses had broken away from the cylinder head. The cylinder was replaced. DCA/CON/168A requires inspection of the rocker shaft bosses at next cylinder removal or overhaul, and then at each subsequent overhaul. This is the second failure of rocker shaft bosses on this engine. The reporting engineer suggests that a visual inspection of the cylinder rocker shaft bosses be carried out at the earliest opportunity, and then a repetitive inspection at 500 hrs TIS. It appears that one of the rocker shaft bosses had been cracked for some time and this failure would have been seen without the aid of an NDT procedure. Rocker shaft bosses can be prone to cracking following occurrences of stuck valves, and through undersize boss dimensions due to wear and machining.

CAA Occurrence Ref 10/261

American Champion 8KCAB

Propeller attach nut

Part Manufacturer:	MTV
Part Number:	MTV-15-B-C/C188-34
ATA Chapter:	6100
TTIS hours:	50.35

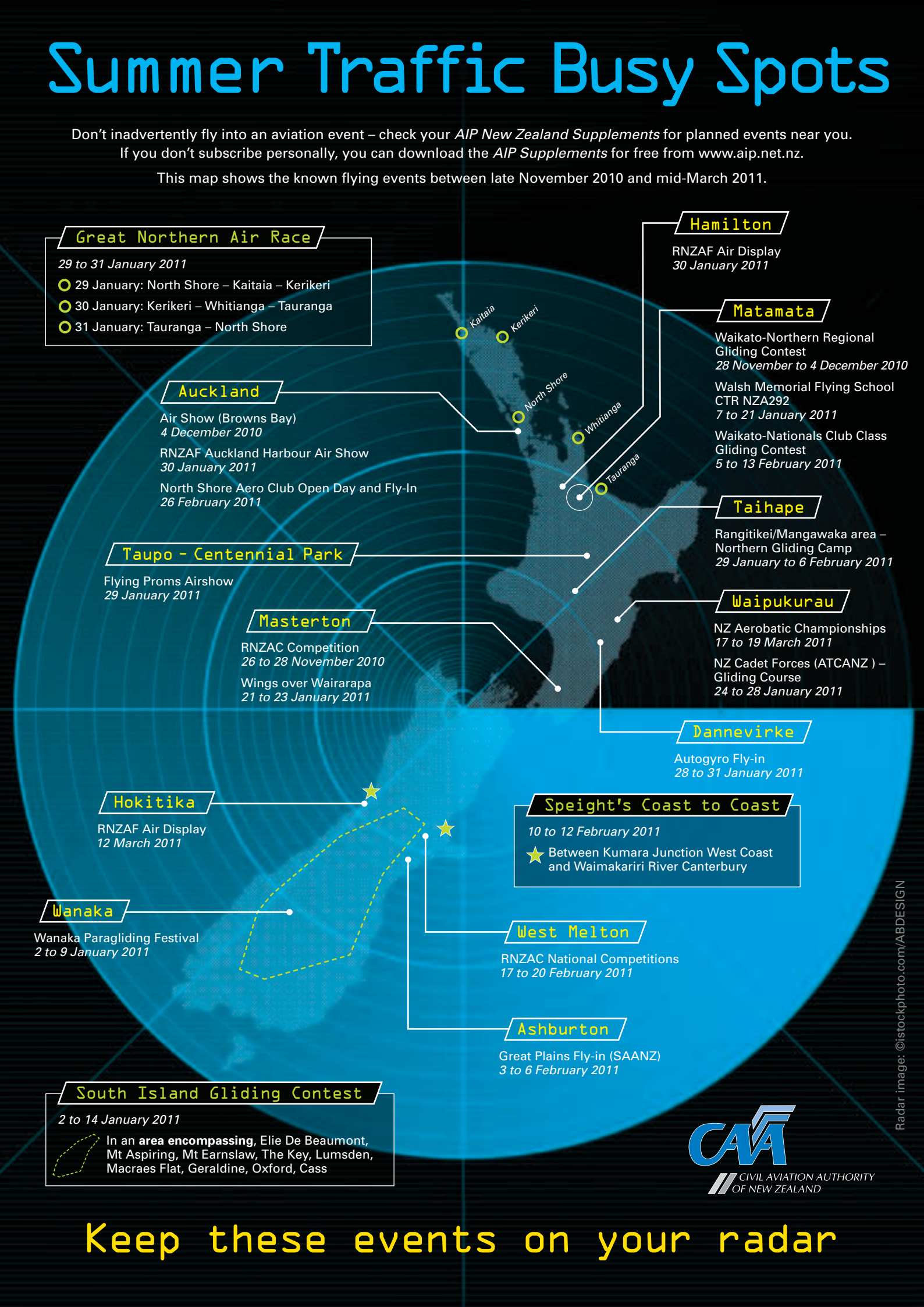
During a pre-flight inspection, one of the six propeller nuts was found split into two parts. It was held on only by the torque of the nut. The aircraft was grounded until all six nuts were replaced. The nuts are the subject of a service bulletin, number 25, issued by the manufacturer MT Propeller on 30 April 2010.

CAA Occurrence Ref 10/2597

Summer Traffic Busy Spots

Don't inadvertently fly into an aviation event – check your *AIP New Zealand Supplements* for planned events near you.
If you don't subscribe personally, you can download the *AIP Supplements* for free from www.aip.net.nz.

This map shows the known flying events between late November 2010 and mid-March 2011.



Great Northern Air Race

29 to 31 January 2011

- 29 January: North Shore – Kaitaia – Kerikeri
- 30 January: Kerikeri – Whitianga – Tauranga
- 31 January: Tauranga – North Shore

Hamilton

RNZAF Air Display
30 January 2011

Matamata

Waikato-Northern Regional Gliding Contest
28 November to 4 December 2010

Walsh Memorial Flying School CTR NZA292
7 to 21 January 2011

Waikato-Nationals Club Class Gliding Contest
5 to 13 February 2011

Auckland

Air Show (Browns Bay)
4 December 2010

RNZAF Auckland Harbour Air Show
30 January 2011

North Shore Aero Club Open Day and Fly-In
26 February 2011

Taihape

Rangitikei/Mangawaka area – Northern Gliding Camp
29 January to 6 February 2011

Taupo - Centennial Park

Flying Proms Airshow
29 January 2011

Waipukurau

NZ Aerobatic Championships
17 to 19 March 2011

NZ Cadet Forces (ATCANZ) – Gliding Course
24 to 28 January 2011

Masterton

RNZAC Competition
26 to 28 November 2010

Wings over Wairarapa
21 to 23 January 2011

Dannevirke

Autogyro Fly-in
28 to 31 January 2011

Hokitika

RNZAF Air Display
12 March 2011

Speight's Coast to Coast

10 to 12 February 2011

★ Between Kumara Junction West Coast and Waimakariri River Canterbury

Wanaka

Wanaka Paragliding Festival
2 to 9 January 2011

West Melton

RNZAC National Competitions
17 to 20 February 2011

Ashburton

Great Plains Fly-in (SAANZ)
3 to 6 February 2011

South Island Gliding Contest

2 to 14 January 2011

In an **area encompassing**, Elie De Beaumont, Mt Aspiring, Mt Earnslaw, The Key, Lumsden, Macraes Flat, Geraldine, Oxford, Cass

CAA
CIVIL AVIATION AUTHORITY OF NEW ZEALAND

Keep these events on your radar