

vector



Warbirds Over Wanaka

Recreational Drugs
and Aviation

RPAS Update

Parachute Landing Areas

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Cover: A regular star at Warbirds Over Wanaka is the Aero L-39C Albatros ZK-WLM, captured in this stunning air-to-air shot by Gavin Conroy. See Warbirds Over Wanaka, page 4.

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Young Eagles

Young Eagles is a programme run by Flying New Zealand that aims to give young people a first flight experience in a light aircraft. The programme fosters enthusiasm for aviation and a good safety culture.

The Young Eagles also have opportunities to participate in related activities such as visits to control towers, maintenance workshops, and aircraft museums. Some former Young Eagles have continued their training to become commercial pilots.

The Young Eagles can apply for the annual Ross Macpherson Memorial Flying Scholarships. Each scholarship is worth \$2500 toward flight training at the winning Young Eagle's aero club.

This year, there were five scholarships awarded at the Flying New Zealand national competitions at Tauranga in February:

- » Adam Baker – Marlborough
- » Nari Casley – Motueka
- » Jake Perks – Nelson
- » Connor Adams – Waikato
- » Erin Carter – Tauranga.

In addition, the Nola Pickard Trophy is awarded annually to a Young Eagle who attends and competes in the Young Eagle competitions. They compete in a preflight inspection test, an aircraft defect competition, and then complete an aviation knowledge examination.

The Pickard Memorial Trophy for 2014 was awarded to Erin Carter, who also received a \$150 flight voucher.

The Young Eagles also visited a busy engineering workshop, explored the local aviation museum, saw the local gliding club in action, visited the very busy control tower, and experienced the magic of a flight in a Stearman biplane.

Young Eagles at Tauranga entered the aircraft defect competition for the CAA trophy. Here they point out some of the defects they found, including a flat nose oleo, a screwdriver in the engine bay, and an inoperative taxi light.

The President of Flying New Zealand, Richard Small, said the Young Eagles are a growing branch of New Zealand aviation. There are now 400 young people who have joined participating aero clubs to experience aviation through the programme.

"Young Eagles is open to any aviation minded young person between the age of 11 and 17 years. I invite them to contact their local aero club or search the Flying New Zealand web site for more information about the programme and activities," says Richard.

All the Young Eagles at Tauranga indicated they have career plans as pilots, with strong interest in engineering, avionics, and RPAS technology.

Adam Baker from Marlborough has his sights set on a career with the RNZAF, while Jake Perks from Nelson hopes he is on his way to an airline job, "I'm wise about spending money – it all goes on flying," he said.

Nari Casley from Motueka, works after school to support her flying training, "Winning the scholarship has given me a real boost to complete my first solo and head towards a PPL. I hope to become an instructor before flying for the airlines," she said.

The CAA is a major sponsor of the Young Eagles in New Zealand, together with Aviation Services Limited, and Aviation Cooperating Underwriters. In addition, products and services were donated by Downunder Pilot Shop, Z Energy, and Airways.

For more information, see www.flyingnz.co.nz, and www.young eagles.org. ■

They are (L to R): Adam Baker (Marlborough); Tim Braim (Tauranga); Connor Adams (Waikato); Nari Casley (Motueka); Jono Blair (Waikato); Erin Carter (Tauranga); Jake Perks (Nelson) and Jack Brawn (Tauranga).



Warbirds Over Wanaka

The Great South Migration begins in earnest in the days leading up to Easter. This is the time when large numbers of light aircraft from all over the country converge on Wanaka for the biennial airshow. Getting there and back presents some challenges for both old and new pilots, and we discuss the main ones here.

Planning

The 'big-picture' planning needs to be done well in advance of your trip; the further you have to go, the more planning involved. This phase covers route selection (preferred and alternative); working out approximate transit times and fuel availability (is your swipe card compatible?).

Check the availability of aircraft tiedowns and survival gear, and include these in your preliminary weight calculations.

Consider a general pre-trip briefing for your passengers. This should include baggage weight limits; what to bring to cater for a survival situation; and most importantly, the vagaries of VFR flight in New Zealand weather. A four-day trip can easily turn into a week, so flexibility of the proposed return date should be discussed.

If your passengers are non-aviators, make it clear to them that any enroute decision to divert or turn back is entirely yours, and made for their safety. Passenger pressure can lead to bad decisions. So can peer pressure if you are sharing the flying with other pilots.

This is a good time to evaluate your own personal minimums, and having these firmly fixed in your mind will make decision-making easy when the time comes.

Current charts and publications are essential. Significant airspace changes have occurred in southern regions, especially around Queenstown, since the 2012 Wanaka airshow. Any electronic versions of charts and publications will need checking for currency before planning the trip.

AIP Supplement 42/14 is required reading. Airspace, aerodrome control, and arrival and departure procedures are clearly detailed in the SUP. Note in particular the requirement for 30 minutes holding fuel, over and above your normal reserves, on arrival in the Wanaka area.

If you plan to arrive on or before Wednesday 23 April, be aware that the normal Wanaka aerodrome chart still applies, including the skydiving and overhead joining cautions. The SUP takes effect from Thursday to Monday inclusive.

See also SUP 11/14, which details a new visual reporting point (VRP) Eastern Ridge, 5 NM east-north-east of Wanaka Aerodrome.

Despite the availability of all this information, some pilots still arrive at these events without having read the relevant SUPs or NOTAMs, and are a menace to themselves and all other participants.

In the days leading up to your planned departure, check the developing weather patterns, which will narrow down the choice of route. Get the latest weather and NOTAMs on the day of departure, and use these to fine-tune your planning.

Also consider the 'departure window' concept, to ensure that you arrive at your destination with time to spare. Work backwards from last light, with your personal 'buffer' (eg, one hour), add your estimated leg times and intermediate stops, to come up with a latest departure time.

If that looks like being compromised, aim for a closer destination and overnight stop, or abandon the flight until the next day. Also, update your estimate if you're delayed by diverting around weather.

Filing a flight plan is strongly recommended – at \$4.55 for online filing, or \$6.60 by other means, it's a sound investment, especially when combined with regular position reporting. In the event of your non-arrival, any SAR action will be much more effective when based on your last reported position, rather than say, "somewhere between Blenheim and Wanaka, and either coast".

From the North Island

Depending on where you start from, there might be a choice of route, to cater for adverse weather. Down the middle or via the coast? There is the inevitable Cook Strait crossing to think about, with its height and airspace considerations, and the possibility of having to wait due to weather.

On at least one past occasion, many light aircraft became stranded at Paraparaumu and other lower North Island aerodromes, and were unable to continue in time for the airshow. It's probably worth thinking now about what alternative arrangements you would make in that event – remembering that Easter is a busy time for public transport.

Across the Ditch

Once across the strait, you still have a fair way to go – most of the length of the South Island. Again, the weather will dictate the best route, and if the weather gods are benevolent, a smooth, spectacular trip down the centre might be your choice.

Bad weather on the east coast might limit your choices to an overnight stop, or a trip down the west coast.



East is East

The coastal route to Christchurch is straightforward, but south of Christchurch there are several choices of route if weather is a factor.

The MacKenzie basin, Omarama, and the Lindis Pass form what is probably the most-used route, leading conveniently to Tarras VRP. This is a key point in the Wanaka arrival procedures.

A low cloudbase on the east coast might require using the Waitaki valley to get to the Lindis area, or even diverting to the south of Dunedin to access the Clutha Valley. Any major diversions of this nature will need careful revision of your fuel plan.

West is West

From the Blenheim area, the Wairau, Buller, and Inangahua/Grey valleys offer an easy crossing to the west coast, but rework your fuel calculations if you choose this option.

You might prefer the west coast route anyway, from a purely scenic and experience perspective. It has a lot to offer in that regard, but diversion choices, fuel, and radio coverage are very limited south of Hokitika.

The Haast Pass is a convenient entry to the Wanaka area, but before getting too far up the Haast River, you will need to be sure that the cloudbase will let you cross the 1845-foot pass and transit the narrow valleys at a safe height.

Just a tip – look carefully for the junction of the Haast and Landsborough Rivers, as here the Haast enters via a sharp turn from the south. It is easy to find

yourself a few miles up the Landsborough before realising that you've missed the turn.

And Never the Terrain Shall Meet

A fair portion of the trip will involve flying over and among the mountains in the South Island. Pilots unfamiliar with mountain flying should plan the easier routes, and as part of the pre-trip planning, familiarise themselves with the GAP booklet *Mountain Flying*. The booklet has a companion DVD, which is available for loan from library@caa.govt.nz, or purchase from Video New Zealand, www.videonz.co.nz.

In the Wanaka Area

As we say each time, read the SUP carefully. There is a 5-NM radius control zone (CTR) centred on Wanaka Aerodrome, and a coincident restricted area (R998). The restricted area is activated and the CTR deactivated during practice times and the actual airshows. Entry to R998 is prohibited during these times.

Wanaka Tower (primary 120.1 MHz, secondary 118.9) is on watch only while the CTR (but not R998) is active. You might find the tower signal strength low compared to nearby aircraft, so careful listening may be needed.

For convenience, the CTR and R998 activation times are tabulated on page 7. Plan your arrival in the area to suit, but if you arrive once the show has started, it's a diversion and ground transport to get there.

Read the arrival procedures carefully, and determine well in advance which are applicable. If you're still out of range of the ATIS (127.6 MHz), listening to the responses from preceding traffic may give you a clue.

» Continued on next page

Pylon racing will feature for the first time at this year's show

BIRDS OVER WANAKA

BIRDS OVER WANAKA



Wanaka Airshow
10th April 2014



Your radio work will need to be right up to the mark – the tower frequency will be very busy, so a quick prior refresh from the GAP booklet *Plane Talking* would be helpful. In particular, remember the four Cs – make your calls **C**lear, **C**oncise, **C**onsistent, and **C**orrect.

A good lookout is absolutely vital – large numbers of aircraft will be arriving on the Thursday and Friday, with stragglers early on Saturday and Sunday. If your aircraft has landing and taxi lights, get these on early, for the benefit of other pilots and the tower controllers.

Pilots arriving in the late afternoon should be aware that the sun disappears behind the ridge to the west of the airfield between 17:45 and 17:50, leaving the airfield in shadow some 15 minutes before 'theoretical' sunset. Official end of daylight is about 18:35, but factor in the early disappearance of the sun, and any overcast or reduced visibility conditions if using this as a deadline.

Remember to terminate your flight plan or SARTIME, either by phone after arrival, or while still airborne and within coverage of Christchurch Information.

SARTIME should include an allowance for landing and taxiing if you intend terminating after landing. Note that Wanaka Tower will not be accepting VFR flight plan or SARTIME terminations.

The commercial skydiving operation based at Wanaka will cease at midday on Wednesday 18 April and resume on the morning of Tuesday 22 April. In the interim, the operation will be located at Cattle Flat in the Matukituki Valley, 15 NM north-west of Wanaka Aerodrome.

Pilots aspiring to a scenic flight in this area will need to maintain a good lookout, as parachutists may be anywhere within a 3-NM radius of the strip, and the jump aircraft will be climbing and descending (to/from 16,000 feet) anywhere up to 8 NM from the strip.

Once you're safely on the ground at Wanaka, enjoy the show and associated activities!

Going Home

A lot of the planning for the homeward journey will have been done already, in the pre-trip phase. Getting the weather and NOTAMs, and deciding on the best route will be done on the day.

The considerations are the same, but in the reverse geographical order. Beware the 'get-home-itis' syndrome – there's no shame in staying put or stopping overnight en route if the weather's bad.

If there's pressure to get the aircraft back, or your passengers are getting antsy about being delayed, this is the time when you have to explain that the decision to go is yours only. Including this aspect in your pre-trip briefing, however, should help soften the blow.

Wakey Warbird – a Reminder

The RNZAF will be displaying their latest rotary-wing acquisition, the NH90, at Warbirds Over Wanaka. The unseen companion to this beast is its wake turbulence, which in itself can leave a lasting impression.

The article "Wake Up to Helicopter Wake" in the January/February 2012 issue of *Vector* explains the phenomenon and the hazards in detail, and is available on the CAA web site, www.caa.govt.nz, under "Publications".

A three-minute separation is strongly recommended when following one of these helicopters (or its stable-mate, the Seasprite), such is the intensity of the wake vortices generated in forward flight. Also, avoid taxiing in the vicinity of a hovering NH90 or Seasprite, as the downwash could cause an upset to a light aircraft.

These cautions apply to any medium to heavy helicopter, but even a light helicopter can generate enough wake turbulence to spoil your day.

For further reading, see the GAP booklet *Wake Turbulence*, also available on the CAA web site, or on request from info@caa.govt.nz.



Some Helpful Stuff

The following CAA GAP booklets and related products can help with your trip planning. For convenience, just email info@caa.govt.nz and ask for a 'Wanaka Pack', and we'll send you all of these:

- » *New Zealand Airspace;*
- » *VFR Met;*
- » *Weight and Balance;*
- » *Fuel Management;*
- » *Mountain Flying;*
- » *Plane Talking;*
- » *Survival;*
- » *In, Out, and Around Mount Cook;*
- » *In, Out, and Around Queenstown;*

- » *Secure Your Aircraft;*
- » *Weather Card;*
- » *VFR Met Minima card;*
- » *Time in Your Tanks fuel log;*
- » *Cross Country Checklist pad.*

AIP Supplements are available free online at www.aip.net.nz. NOTAMs are available on Airways' recently-updated Internet Flight Information Service (IFIS) web site, www.ifis.airways.co.nz (see page 21).

For information on the airshow itself, see the Warbirds Over Wanaka web site, www.warbirdsoverwanaka.com. ■

Arrival and Departure Times at Wanaka

R998	Airspace closed for practice and airshow
CTR/D	Wanaka Tower on watch
	Unattended aerodrome procedures apply

NZST	Thursday 17 April 2014	Friday 18 April 2014	Saturday 19 April 2014	Sunday 20 April 2014	Monday 21 April 2014
06:00					
07:00					
08:00					
09:00					
10:00					
11:00					
12:00					
13:00					
14:00					
15:00					
16:00					
17:00					
18:00					
19:00					

Recreational Drugs and Aviation

You'd be stupid to fly under the influence of alcohol or illicit drugs. But if you use drugs recreationally, how long do they impair your performance?

Recreational drugs have a wide range of effects, and different people can react to them in varying ways. Even after the noticeable effects wear off, you may be unaware that your performance is still impaired.

Alcohol

Most pilots understand what a standard drink is, and how their performance is affected after a few drinks. However, it's harder to get a grip on how your performance will be impaired during the hangover period and in the following days.

Hangovers can occur at any time of day – it's not just a morning thing.

When flying, a hangover effect can be just as dangerous as flying when intoxicated. Even after your body finishes processing the alcohol in your system, a hangover may continue to impair your performance. The majority of effects associated with a hangover relate to the brain, eyes, and inner ear – all of which are vital when flying.

These undesirable effects can continue for up to 72 hours after your last drink.

If you are suffering from other negative effects, such as sleep deprivation or fatigue, the hangover is magnified.

Illicit Drugs

A 2010 New Zealand Ministry of Health report stated that one in six (16.6 per cent) of New Zealanders aged between 16 and 64 had used recreational drugs in the past year. This report covered recreational drug use other than alcohol and tobacco.

Of that group who used drugs, a whopping 88 per cent reported they had used cannabis – New Zealand's recreational drug of choice.

The scariest statistic: one in three of those who used drugs in the past year reported having driven a car or other motor vehicle while feeling under the influence. And this was just those who realised they were under the influence. A number of others would have driven unaware of their impairment.

Cannabis

Evidence shows that those who are heavy users remain impaired even when they are not intoxicated. These impairments (attention and memory related) can last for many weeks, months, or even years after stopping use.

In one study conducted by the Australian Transport Safety Bureau, the subjects were nine licensed pilots, highly trained in a flight simulator task. They received a cannabis cigarette containing 20 mg of THC (the active ingredient – a moderate



Undesirable effects can continue for up to 72 hours after your last drink.

dose). The dose caused a significant impairment in performance which lasted over 24 hours after use.

The majority of the pilots were unaware that their performance was still impaired at the 24-hour mark.

Carterton Fatal Accident

In January 2012, a hot-air balloon collided with a power line while attempting to land just north of Carterton in the Wairarapa. Eleven people were killed (10 passengers and the pilot). This accident is New Zealand's worst aviation tragedy since Erebus in 1979.

According to the Transport Accident Investigation Commission report, it was "highly likely" that the pilot smoked cannabis on the morning of the flight, with two witnesses saying they saw him smoking only about 25 minutes before the flight.

Toxicology results found he had 2 mg of cannabis per litre of blood, which was consistent with smoking cannabis 4 to 6 hours prior, and that he was unlikely to have been smoking tobacco.

The Institute of Environmental Science and Research noted that symptoms of cannabis intoxication usually peak 10 to 15 minutes after smoking cannabis and last 1.5 to 4 hours.

"Studies have shown that the greater the judgement and skills required in performing a task, the greater would be the impairment," states the report.

The degree of cognitive impairment of the pilot could not be excluded given the carry-over effect of cannabis from both recent and longer-term use.

Synthetic Cannabis

New Zealand Drug Foundation Executive Director, Ross Bell, comments on the prevalence of synthetic cannabis in New Zealand and the potential health concerns that surround it.

"Because synthetic cannabis products are a diverse group of new substances, there has been little research done on how

they affect humans. Consequently, we don't know much about the long-term health effects.

"There is not much information about the short-term health effects either. Local experiences of negative effects have included minor headaches and shaking, but have also included kidney failure and psychotic episodes.

"There are no figures on the use of synthetic cannabis. The recent passing of the Psychoactive Substances Act will mean we will soon have a clearer picture about how much synthetic cannabis is being used in New Zealand," says Ross.

Symptoms to Look For

Do you know a fellow pilot who may suffer from an addiction? If you can recognise the warning signs, then you may be able to get them the professional help they need.

Physical Symptoms

- » Unusual pupil dilation and/or bloodshot eyes
- » Changes in breath, body, or clothing smell
- » Sinus changes, such as excessive sniffing
- » Weight gain or loss
- » Changes in appetite
- » Drastic changes in sleep patterns
- » Slurred speech
- » Impaired coordination.

Changes in Emotional Behaviour

- » Change in personality or attitude
- » Sudden mood swings
- » Appears anxious, fearful, or paranoid
- » Changes in attention span, memory, enthusiasm, motivation, or concentration
- » Change in the person's values, beliefs, or self-discipline
- » Lethargic or unusually tired.

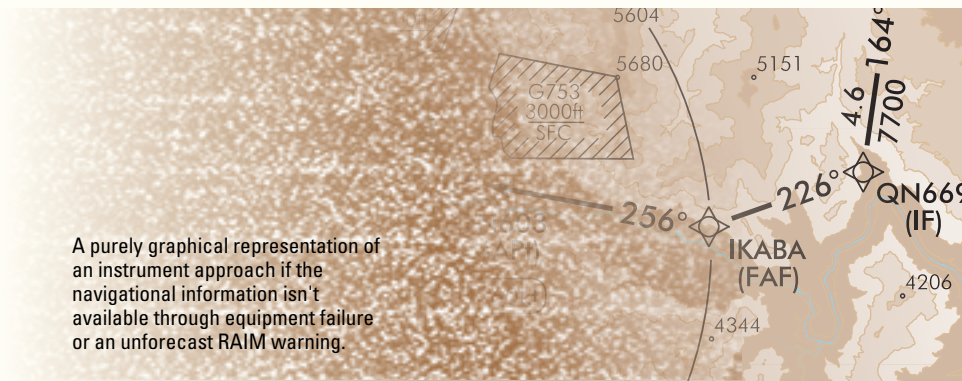
If you suffer from an addiction, or have concerns about someone else, confidential help is available. See the web site, www.hims.org.nz, for further information. ■

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Performance-Based Problems – Please Report

New Zealand is progressively heading down the performance-based navigation path, with satellite-based technology becoming the dominant means. Like every path though, there are inevitably bumps and bends, and we need to hear about these to get a feel for where the main problem areas are.



A purely graphical representation of an instrument approach if the navigational information isn't available through equipment failure or an unforecast RAIM warning.

These could be unpredicted RAIM outages (see sidebar), aircraft equipment failure, or simply 'finger trouble' such as entering the wrong route.

Generally, any problems that result in events such as a missed approach, incorrect tracking, or potential loss of separation in controlled airspace, are routinely reported to the CAA by Airways.

Not every one of these reports, however, is matched by a report from the pilot or operator. Having both sides of the story makes investigation more meaningful, and can result in some valuable safety lessons being learnt.

The easiest means of reporting is to use the CAA's online system, www.caa.govt.nz/report. There's more than one type of incident (eg, airspace incident, aircraft incident, defect incident, facility malfunction) so choose the category most applicable.

That's not critical though, as each

reported occurrence is classified appropriately when entered into the CAA system.

Don't be Embarrassed

If you have a 'finger-trouble' experience that could have led to an incident, don't be shy in sharing it. It might help someone else avoid doing the same thing and having a worse outcome. If the event isn't one notifiable under Part 12, you can always submit the details to *Vector*, for an "I Learnt about Flying From That" type of article.

One such occurrence, which fortunately didn't escalate to something more serious, involved an outbound IFR aircraft instructed to track on a VOR radial for separation from an inbound aircraft. When the outbound aircraft came into radar coverage, it was in an unexpected position. It had been using GPS tracking, but the track originated from a waypoint that wasn't actually the departure aerodrome.

What's RAIM?

Receiver autonomous integrity monitoring. This is software built into some GPS receivers to indicate whether the position derived is valid for use. A TSO 129 type receiver will use RAIM fault detection, comparing inputs from four of at least five satellites (or four and a barometric source).

This detects if one satellite is faulty, and the receiver provides a warning to the pilot that the position information is unreliable and should not be used for navigation. It will also generate a warning if there are not enough satellites in view for the RAIM function to work. The type of warning varies between equipment manufacturers, but the main point here is that you may not commence a GNSS approach while a RAIM warning is displayed.

TSO C145a and 146a receivers use RAIM fault detection and exclusion (FDE), using six satellites or five plus a barometric reference. If one of the satellites is faulty, the set excludes it from the position solution, and carries on with the remainder.

At times, the disposition of the visible satellites may not be suitable for RAIM to work – this is known as a 'RAIM hole' and is predictable. Occasionally, one or more satellites might be off line for routine maintenance or fault rectification; this can result in an unforecast RAIM hole.

When planning to use a GNSS approach at a destination, your preflight planning must include checking the RAIM forecast, available on the IFIS web site (see page 21). Report any unexpected RAIM warnings encountered in flight, as indicated earlier. Similarly, report any cases where a warning occurs during an approach, requiring either a missed approach, or an alternative approach such as VOR/DME.

Further information can be found in *AIP New Zealand* Vol 1, ENR 4.3. See also Civil Aviation Rules, Part 19, Subpart D *IFR Operations: GNSS*. ■

Remotely Piloted Aircraft Systems Update



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Although the Remotely Piloted Aircraft Systems (RPAS) sector is a dynamic and rapidly evolving one, there are existing rules in place that cover the activity of these aircraft.

The current rules for Remotely Piloted Aircraft Systems (RPAS) were initially developed for model aircraft that are flown recreationally under strict operating conditions.

All pilotless aircraft weighing **more** than 25 kg require a Part 19 Authorisation before they are permitted to operate. This authorisation requires proof from the operator that they have the ability and intention to operate safely.

Pilotless aircraft weighing **less** than 25 kg are classed as model aircraft and are subject to Part 101 operating conditions. You need to be familiar with these operating conditions – the only way to do that is to study them in Part 101. Be aware that rule 101.205 *Aerodromes* changes with effect 1 April 2014.

The conditions about operating near an aerodrome are particularly important, as is this example, "A person shall not

operate a model aircraft in a manner that creates a hazard to aircraft or to persons or property."

Long-term Strategy

Although these rules cover RPAS operations at the moment, they don't take into account the rapid growth in this sector, and are not tailored for the range of potential activities.

Activities in populated areas, and flying at heights that other aircraft use, are just two instances of increased risks posed by some RPAS operations.

Work is progressing for the safe operation of RPAS so that risks are properly managed.

The CAA recognises that the applications of these aircraft can bring social and economic benefits to New Zealand.

Currently, interim information is on the

CAA web site, and an Advisory Circular is being prepared.

Later this year, the CAA intends to publish a longer-term strategy for the integration of RPAS into the New Zealand civil aviation system.

New Web Page and Email Service

We've created a web page especially for RPAS to keep participants informed of developments. There's also a new email subscription service to let you know when the page has been updated.

The web page is: www.caa.govt.nz/rpas and it has details to subscribe to the email notifications too. If you already subscribe to some of our lists, you will need to add this one.

For further information, email info@caa.govt.nz. ■

Pilotless Aircraft Occurrence Reporting

During flight, did you have a close encounter of the model aircraft or RPAS kind?

As an Air Traffic Controller, did you find yourself lapsing into non-standard phraseology, "Continue approach number two, follow the... crikey, mate what's that in the circuit?"

While photographing, did your quadcopter suddenly experience a software glitch and fall out of the sky?

The CAA needs to hear about these occurrences. This information will help us further integrate pilotless aircraft into New Zealand's regulatory framework.

Reporting is easy – you can do it online:

www.caa.govt.nz/report

You will receive an email of your report, asking you to confirm or amend the details.

There are also forms on the web site that you can email or fax into the CAA. ■

Letter from an aeromodellers club to a member advising the member to follow rules governing model aircraft flight

While abeam Port Motueka enroute Motueka low flying area, pilot observed a red model aircraft approximately 30 to 50 feet below executing a climbing turn, necessitating the pilot to take evasive action.

A local pilot raised concerns that a model helicopter was being operated inside the control zone.

After being woken up, a resident raised a concern regarding model aircraft being flown in a public park at night.

The aircraft was flown through Danger Area S21 at 700 to 1000 feet AGL heading towards Palmerston North. An unmanned aeronautical vehicle was operating in the vicinity at the same

Parachute Landing Areas



Parachute landing areas (PLAs) are established to warn pilots of an area where intensive parachuting takes place. You will need to keep a good lookout for parachutes when operating near a PLA.

There are 37 aerodromes in New Zealand with PLAs on the field. Pilots need to keep a good lookout for parachutists when operating on the airfield surface and when flying near a PLA.

Any portion of airspace near an active PLA should be treated as a Danger Area, and you enter at your own risk. This applies to airspace above and upwind of the PLA where parachutists may be in free fall descent or flying downwind to a landing.

Be Prepared

As part of your pre-flight planning, check the AIP aerodrome charts for any special procedures. And don't forget to check on the Visual Navigation Charts (VNC) for PLAs along your intended track. PLAs are shown by a parachute symbol and the code Pxxx.

AIP NZ, Vol 1 ENR 5.3 has the details of all current PLAs including the appropriate frequency for general use in the area. This is usually the aerodrome frequency. Have this noted on your flight log or VNC. Study the aerodrome chart notes for further information, including AWIB frequency and instructions for use. Some AWIB can advise if parachuting operations are taking place.

What Happens in the PLA?

The first signs of parachute activity in the PLA will normally be radio calls from the drop aircraft. In controlled airspace, all drop operations will be coordinated with the local ATS, and all drops, including dropping through cloud, require an approval.

In uncontrolled airspace, standard radio procedures apply, and jumpers must

remain clear of cloud. There is no room for separation between parachutists suddenly exiting from the cloud base, and an aircraft flying below. Both of you should be complying with the published VFR met minima for the class of airspace you are using (see GAP booklet, *New Zealand Airspace*).

The drop plane will call when taxiing and will usually inform local traffic of drop details. Listen carefully; make notes on your log, then talk to local traffic to advise them of your presence and intentions.

Tandem jumps can be from 20,000 feet agl, while sport jumps can be as low as 2000 feet agl. The parachutes can be opened anywhere between 5000 feet and 2000 feet agl.

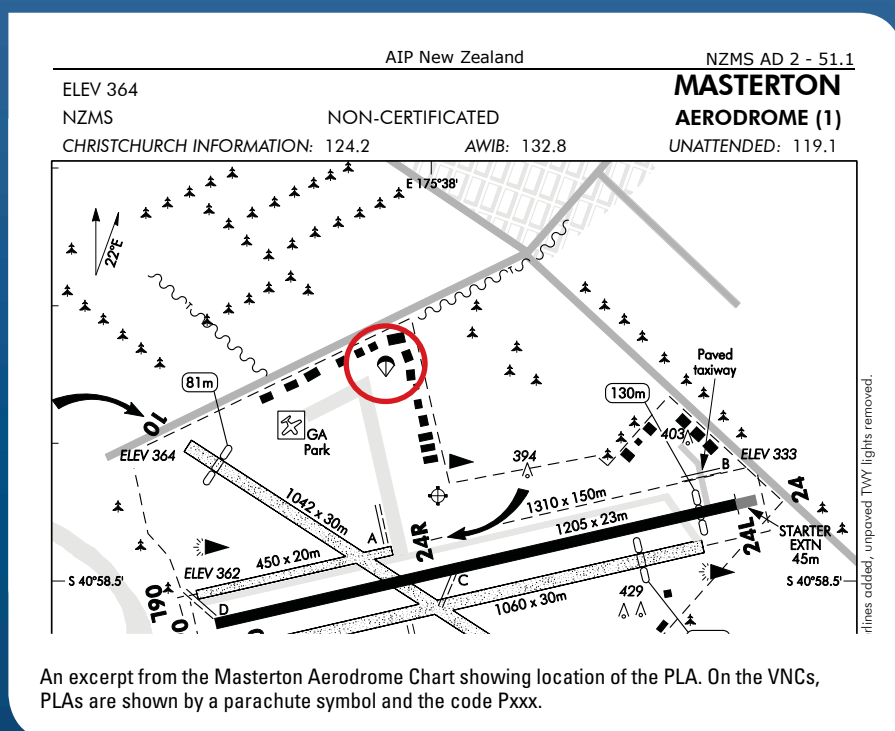
Times for the cycle of climb, drop, descent and landing vary, depending on the type of aircraft; turbine or piston powered. It can be anywhere between 15 and 30 minutes.

The drop plane will make a call "two minutes to drop" and will state the number of canopies. This is your cue to plan your approach to the field, or transit of the PLA.

The drop plane will also advise "jumpers away" when the parachutists exit the aircraft.

The drop point will normally be upwind of the aerodrome and, depending on the wind strength and direction, may be up to 3 NM away from the PLA.

Parachutists in free fall are descending at close to 10,000 feet per minute. A typical tandem jump from 16,000 feet to canopy open at 5000 is about one minute free fall, and about five minutes under canopy. Sport jumpers will open lower at two to three thousand feet,



An excerpt from the Masterton Aerodrome Chart showing location of the PLA. On the VNCs, PLAs are shown by a parachute symbol and the code Pxxx.



and will enjoy up to three minutes under canopy.

Use these times to plan your next steps. To avoid parachutes in the air, you might join downwind or straight in. You could also hold clear of the PLA until all canopies are on the ground, and then complete the overhead join.

Steve Holder is an experienced jump pilot for Sky Sports (NZ) Ltd, operating from PLAs at Hastings and Masterton. Both of these airfields are in uncontrolled airspace, and both are busy with most forms of aviation taking place at any time.

“We have had a number of instances over a period of time, of aircraft operating in or near the Masterton PLA when parachutists are in descent.

“We also witnessed a possible conflict whereby aircraft taxied through the PLA when four canopies were in the air on approach for a landing.

“Because we are in the area and want everyone to stay safe, we welcome any chance to talk to pilots coming into the area or passing through. We are only too pleased to help,” said Steve.

Tips for Safe Operations

Visiting NORDO aircraft can mean a big risk to safe separation of parachutes and aircraft. Pilots of these aircraft should have noted the PLA in force, and be looking for any signs of activity as part of the approach to land.

If you have no aircraft radio, or have radio failure and cannot hear the drop aircraft calls, never join overhead. You are also best to transit the area at least 3 NM from the PLA.

Be aware that things do not always go to plan. Parachutists do not always land on the spot, and malfunctions do happen. When this occurs, the parachutist deploys a reserve parachute. The main parachute is jettisoned and floats to the ground under the prevailing wind.

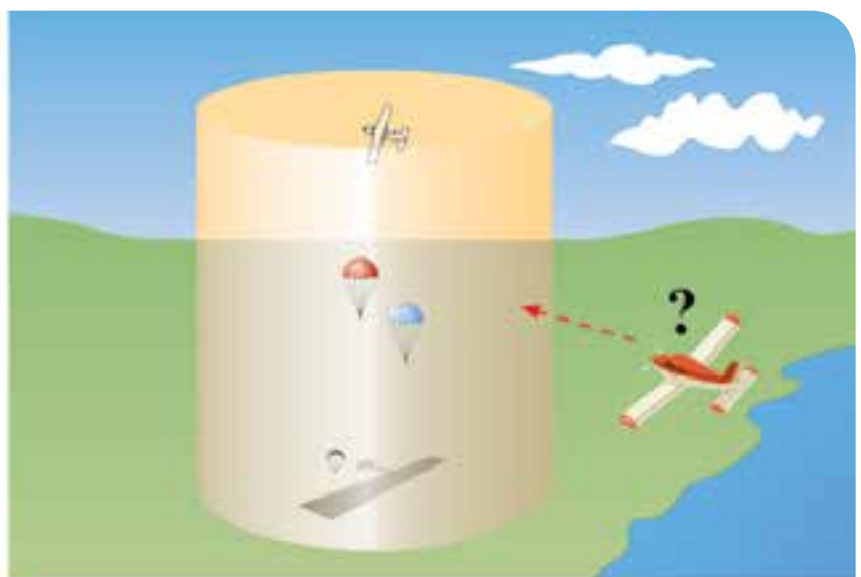
With this in mind, if you are on the ground and have your prop or rotor turning, operate with extreme caution within 100 metres of an active PLA.

Before you start your engine, listen for information and look for canopies in the air. If there are any about, it is safest to delay the start until they are all on the ground.

On departure, if lined up ready to go, it is a good safe option to take off and climb straight ahead for at least 3 NM to clear the PLA.

When Near a PLA, You Need To:

- » Have done prior planning – check the operator details in the AIP, and phone them if you need further information.
- » Communicate – listen for the drop plane, take notes, ask for help.
- » Lookout – scan and look up for canopies and the drop plane.
- » Plan your approach – if you can determine the runway in use, use a downwind or straight-in approach. Otherwise hold clear of the PLA until the jumpers are on the ground, then complete the overhead join procedure. ■



This illustration from the *New Zealand Airspace GAP* booklet warns pilots to treat the airspace near a PLA like a danger area – enter at your own risk.

You can order this booklet for free from info@caa.govt.nz.

Fly Neighbourly at Remote Landing Areas

We are lucky to be able to access many parts of our country by aircraft. But operating in and out of these landing areas needs some thought and consideration.

Let's look at some considerations for operating neighbourly. As with any aircraft operation, plan to make sure the flight is conducted safely for you, your passengers, and any neighbouring properties. It should also be friendly to animals and the environment.

Planning

As always, thoroughly prepare yourself, and your aircraft, fixed-wing or helicopter, for airstrip or helipad operations.

It is always advisable to talk to the property owners as well as any adjacent property owner, and advise your intentions – date, time and purpose.

Obtain their approval to use the area.

If you have to change your plans, contact the airstrip/helipad owner with the revised options. They can then advise neighbours and stock managers of any changes to your operating times.

If you intend to use private property to land on, or use any other part of the property, apart from an emergency forced landing, this action can be declared as trespassing.

Other areas such as Department of Conservation sites, including public camp sites, may be available for private aircraft

operation subject to approval. A briefing on the landing areas, including local weather conditions and hazards, is often available as part of the approval.

A recent incident had a helicopter landing among campers. This created a hazard to people on the ground. There was also the possibility of a tent being caught in the rotor wash and striking the tail rotor or main rotor.

If the pilot had called the campground for approval to operate there, he would have received advice on a suitable landing area located nearby that is free of hazards.

Ben Walters, CAA Flight Operations Inspector Helicopters, is a very experienced pilot and instructor. He says that all helicopter pilots are trained for confined area operations and have a mental checklist to use in these areas.

“The main requirement for safe and successful flight operations is planning.

“The high/low recce is the most valuable tool for a pilot to determine if the intended spot is the safest and most efficient. From a top view, the pilot can quickly assess the spot for size, shape, surface, and slope. You can also see hazards and any stock or people. Noise can scare stock, but alert people.

Photo courtesy of Betty Shepherd.

“Then, having assessed the wind strength and direction, you can set up the approach. You’re now looking for a clear approach and departure path, and are constantly checking for wind and wires.

“A power check is needed to make sure you can hover at the site and have sufficient power to climb out on a missed approach, or after landing,” said Ben.

If you have remote airstrip or helipad flight experience, review your previous training and experiences. Gather information on the airstrip/helipad dimensions, and fixed hazards such as operating area surface condition, obstacles, terrain, and the location of wires and other obstructions.

And if you have not flown into a remote area landing site before, get suitable training from a qualified flight instructor. Talk to local pilots and get their tips for flying in the area. Ask about where to park the aircraft, and if commercial operators use the area.

Neighbours

More and more people want to live in remote areas. They enjoy the isolation and their environment, but do not always enjoy the intrusion of vehicles, including aircraft, shattering the silence. Low-flying, noisy aircraft dropping unexpectedly into their paddocks does not help.

Good airmanship and best practice will help you and your neighbours to get along. This requires you to think about how your flying will affect their lives. It might mean making sure you stay well away from buildings and especially animals.

Fly conservatively. Fly your inspection higher and slower to give you time to fully assess the surrounding area. Make all your decisions based on your planning and what you see when arriving overhead.

Arriving

Roger Shepherd, CAA Investigating Officer, is an experienced pilot who often flies into remote areas. He shares some thoughts and ideas for safe operation, including the arrival on site.

“I always fly an overhead inspection, looking carefully for wires and visible obstacles such as terrain, fences, tracks, and objects on the strip/pad surface. I also get any passengers to look outside the aircraft and tell me if they see any people, buildings, animals, or obstacles. This is a good time to assess the wind strength and direction.

“Plan the approach and landing with an allowance for a possible missed approach and overshoot, or unexpected obstacles on the landing. Self-brief for these possibilities and stick to the plan,” said Roger.

This is a professional approach to risk management that you can adopt. It also shows those on the ground watching your arrival that you have the situation under control. They will feel better, and you will too.

Departing

When ready to depart, and before engine start, you and your passengers should walk down the strip/pad, and any side areas, looking for people, hidden obstacles and especially stock. Stray sheep and trampers have been known to disrupt a takeoff.

The walking inspection is also a good time to check the operating environment. You can see the surface conditions, assess obstacles, and plan the departure. You need to think about a decision point to abort the takeoff and stop in the remaining distance available.

After start, and when lined up, self-brief the takeoff, including engine failure considerations.

During the takeoff roll/liftoff, check again for hazards and intruders. Your departure path should be established to keep you clear of sensitive areas, but not at the expense of safe aircraft performance.

Like any unusual or different flying situation, you can relax only when the aircraft is parked and the hangar doors are closed.

Thoughtful, considered planning will help you enjoy the flying experience. Maybe it will help the neighbours to enjoy it too. ■



SMS – Proactive Implementation

Are you confident that you know where your biggest safety risks are? Implementing a Safety Management System (SMS) will improve your ability to proactively assess risk, and respond effectively to prevent accidents and incidents.

Following risk management consultation last year, the CAA has reviewed all feedback received. The general consensus was that SMS will provide a valuable tool to assist with risk management. Currently, the CAA is working alongside the Ministry of Transport to finalise the SMS proposal and seek a Cabinet decision.

The summary of submissions, along with all other SMS material, is available on the SMS web page, www.caa.govt.nz/SMS.

The Next Step

In 2013, the CAA released the *Safety Management Systems Implementation Strategy*. This included a 7 Point Plan:

compare the QMS elements you have against those in the SMS Booklet 02: *From Quality Management Systems to Safety Management Systems*.

Advisory Circular AC00-4 *Safety Management Systems* provides detailed guidance about the 'who, what, when, where, and how'. It's a must-read for Part 119, 139, 145, and 172 organisations.

Examples to Follow

A series of case studies will be published on the SMS web page in the near future. These will profile some aviation organisations and their progress in implementing a mature and effective SMS.

The 7 Point Plan

POINT 1	POINT 2	POINT 3	POINT 4	POINT 5	POINT 6	POINT 7
Regulation focused on risk	Beyond QMS	Risk management	Safety performance	Scalability	Training and education	Proactive implementation

Each of the points outlines certain measures of success. Point 7 "Proactive Implementation", focuses on ensuring that aviation organisations realise the benefits of introducing an SMS without waiting for regulation.

John Kay, CAA General Manager Policy and System Interventions, encourages organisations to get on board.

"We are waiting for a Government decision whether to progress with SMS rule making. So in the meantime, it gives you a chance to consider what aspects of SMS are appropriate to your organisation, and how proactive implementation can benefit your company culture," says John.

For starters, select one or two areas to concentrate on. Focus on setting clear-cut, risk-based safety policies that go beyond just a focus on Quality Management Systems (QMS). You can

The case studies will also reinforce that SMS isn't just for the 'big guys'. Different types and sizes of operation are all capable of implementing an SMS effectively. What's important is adopting the right scale of SMS appropriate to the size of operation. Goals must be set under a realistic timeframe.

What's in Store for 2014?

The CAA will continue to focus on preparing inspectors and other staff to assist industry, providing SMS education opportunities for industry, and providing further guidance material.

To keep updated, sign up to our notification service on the CAA web site, www.caa.govt.nz, "Email Notification Service". If you already subscribe to some of our lists, you will need to add this one. ■

Tool and Hardware Control

When performing maintenance, you need to manage the inherent human factors.

To help you keep track of tools, you can use a toolbox with easily identifiable 'tools out' recesses, or a shadow board.

Another practice that adds a level of safety is to have an inventory system in place. For example, you could mark all your tools using a pen and a strip of masking tape.

From a business perspective, it's useful to maintain a tool identification log. This provides a way to identify who a tool belongs to when multiple engineers are working in the same location. Employees should sign off a worksheet to show that all their personal tools have been accounted for.

Avoid carrying any items in your clothing. Dropped spanners, screwdrivers, pens, mobile phones, and cable ties, all have the potential to jam flight control runs.

During aircraft disassembly, place small items into clearly labelled containers.

When removing larger parts, have a system in place to keep track of your work in progress, for example, a detailed step by step worksheet.

You can also use physical reminders. For example, during a governor/fuel control unit change, you can attach cable ties to the plumbing as it is removed. During reinstallation, the ties could be cut one by one after each pair of nuts is secured.

Dropped Hardware

Work can often involve confined locations and parts that are difficult to access. When undertaking maintenance where small hardware is involved, take precautionary action.

Rick Ellis, CAA Aviation Examiner Maintenance Engineering, knows this from experience.

"TPE331U engine compressor inlets are a good example. All it takes is one dropped engine nut and then you need to remove the engine – an expensive search and retrieve exercise," says Rick.

Bob Jelley, CAA Aviation Safety Adviser, gives some advice.

"Firstly, survey the work area and cover the likes of control tunnels. This may take a few minutes, but it can save you time in the long run.

Select tools that lessen the chances of dropping items of hardware when performing maintenance.

"There's also a trick you can use to stop any removed nuts escaping from the end of the spanner – use a little tape to ensure a snug fit with the nut flats. This will stop nuts falling as they come free from the fastener thread.

"You can also use tape to secure a socket to the end of an extension. This will help prevent it from going astray," says Bob.

Managing Distractions

As an example, a Cessna 172S had just come out of a 100-hour scheduled inspection. While the aircraft was being tied down after flight, the inspection cover on the right side of the tail plane was found to be bent and had almost fallen off.

The missing screws were subsequently found on the apprentice engineer's toolbox – the apprentice had become distracted partway through the job and the omission had not been identified by the supervisors.

The lesson: if you get distracted when performing a task, go back three steps in the process to prevent any omissions, and use checklists when required.

Additionally, it's good practice to carry out external and internal panel and security checks before releasing an aircraft to service.

For more information on human factors, see the *Vector* article: "Human Errors in Aircraft Maintenance", July/August 2009. ■





Brian Hunter

Warning for Aircraft Owners and Operators

All aircraft owners and operators need to exercise caution before allowing anyone access to their aircraft or operation.

This warning follows the conviction of Brian Hunter for impersonating a pilot. The Judge, on sentencing Hunter, commented that this offending presented a serious risk to the public.

CAA Chief Executive and Director of Civil Aviation, Graeme Harris, said the sentencing of Hunter sounds an alarm for the aviation community.

"All aircraft owners and operators need to be vigilant and exercise caution before allowing anyone access to their aircraft or operational areas. You should check that anyone intending to fly your aircraft or become part of your organisation, holds current and appropriate aviation documents. For pilots this means an approved and valid pilot licence and medical certificate, and logbook evidence of flight and aircraft type experience.

"You can always contact the CAA to verify if someone is suitably licensed to fly, and details of the class and validity of any aviation document they may hold.

"In this case, Hunter showed a complete disregard for the safety of others as well as himself. Safety is the CAA's priority, and the rules are there to protect the industry and the public from people who can bring harm to others. The audacity and severity of these offences is unprecedented by one individual," Graeme said.

If you become suspicious of the actions of any person or operator, you can report your concerns to the CAA (anonymously if desired), on 0508 4 SAFETY (0508 472 338), or by email to: isi@caa.govt.nz. ■



Register your ELT

All beacons must be registered **before** installation. Registration is free and can be completed online: www.beacons.org.nz. You can also fax 04 577 8041, or email 406registry@maritinenz.govt.nz.

If ownership of an aircraft changes, or an ELT is moved from one aircraft to another, the updated details must be notified as above. Keep your beacon contact details up to date to avoid unnecessary delays in the event of beacon activation.

If an emergency where a safe forced landing is a doubtful outcome, activate the ELT early to at least alert the Rescue Coordination Centre New Zealand (RCCNZ) to start making appropriate enquiries.

In addition, if you activate the ELT early when airborne above the surrounding terrain, you have a much better chance of the signal being received by geostationary satellite (GEOSAT).

For those with 406 MHz beacons, if it has an integral GPS set, or a GPS feed, this will allow it to be identified by GEOSATs – minimising the waiting time and search effort.

If you land safely after activating your beacon, leave it on until you get in contact with RCCNZ, call (toll free): 0508 472 269 (0508 4 RCCNZ) or 04 577 803 (if calling from a satellite phone). RCCNZ experiences difficulty with pilots who turn off their beacons after a search has been initiated. This creates uncertainty about the status of the aircraft and its occupants.

Proper flight planning, position reporting, flight following, and additional aids such as proprietary tracking systems, will all help narrow down your position, supplementing the ELT alert. ■

Flight Following Procedures

As flight tracking gadgetry improves, more and more operators are conducting their own search and rescue operations. However, precious time can be lost if the Rescue Coordination Centre New Zealand (RCCNZ) is not alerted when an aircraft is overdue.

Flight following is a term used when operators provide their own flight watch over an aircraft. If an aircraft becomes overdue, the operator may choose to undertake their own search and rescue operation.

Rodney Bracefield, RCCNZ Operational Support Manager, raises some concerns.

“When an aircraft becomes overdue, our staff need to be alerted right away – regardless of whether you initiate your own search and rescue operation. This lets us start making the necessary preparations, such as assessing weather, terrain, and asset availability,” says Rodney.

To contact RCCNZ, call (toll free): 0508 472 269 (0508 4 RCCNZ) or 04 577 803 (if calling from a satellite phone).

In a recent incident, the operator chose to initiate their own search. They didn’t inform RCCNZ that the aircraft was overdue until search attempts proved unsuccessful. By this time it was twilight. Over an hour had been wasted. Luckily, the accident site was found right on dusk.

RCCNZ needs to know the:

- » Overdue time
- » Last point of contact
- » POB
- » Track the aircraft was flying and any deviations from it
- » Forms of tracking used by the operator, eg, Spidertracks
- » Means of communication available to the operator, such as cell phones and satellite phones
- » Number and registration of aircraft that have since been deployed to search, along with their POB and the routes being searched.

“This information will allow us to determine how much confidence we have in the search undertaken by the operator, and how we should employ the assets we have available,” says Rodney.

Flight Following Tips

Flight following involves a lot of responsibility. There needs to be a dependable, trained person in charge. The flight following record must be religiously filled in with the:

- » Departure time
- » Departure aerodrome, or the location of the departure
- » Agreed communication times
- » Type of aircraft and registration
- » Intended landing area



From left to right: John Dickson, Greg Johnston, John Ashby. Photo courtesy of Maritime New Zealand.

- » Pre-arranged time for completion of the operation or SARTIME
- » Fuel endurance
- » POB
- » Details of the emergency and survival equipment on board.

Jeanette Lusty, CAA Team Leader Flight Operations Adventure Aviation, has over nine years flight following experience in a previous position as an owner and CEO of a helicopter company.

“If something goes wrong, it goes wrong very quickly. The more prepared you are, the better the chance the pilot and passengers have.

“If an aircraft becomes overdue, there shouldn’t be any delay in undertaking the required emergency procedures – including contacting RCCNZ. You should always be one step ahead, focused on what needs to be done next.

“If you do intend to conduct your own search and rescue operation, the rules say you can wait up to 30 minutes after the event of a missed report or non-arrival before beginning the procedure.

“In some operations, this 30 minute time period is acceptable. However, in most cases it’s recommended that you don’t wait any longer than 10 to 15 minutes.

“If you do wait half an hour, it could take another half an hour to make all the necessary phone calls and preparations – all before anyone gets airborne,” says Jeanette.

In any case, one of your first calls should be to RCCNZ to inform them of the situation and your intentions regarding undertaking a search. RCCNZ will work with you and may assume coordination of the search at that early stage.

It is better to commence a SAR response and if necessary turn it off rather than wait and risk complicating the search. ■

New Authority Member

Jim Boulton has joined the Authority (or Board) and brings extensive business and commercial experience to his new position.

He is a former Director and Deputy Chairman of Tourism New Zealand, and has been Director, Managing Director, and Chairman of several substantial public and private companies.

For 16 years, he was the Managing Director of Shotover Jet, which offers jet boat rides as one of New Zealand's most prominent adventure tourism experiences.

Jim later began a 10-year association with Christchurch International Airport Ltd (CIAL), initially as a board member, and from 2009 to 2013 as Chief Executive. In his time at CIAL he has overseen a terminal upgrade, endured the devastating earthquakes, and then managed the associated operational problems.

With business interests in many fields, including aviation, Jim



will bring to the Board his experience in adventure tourism and a passion for safety.

"In adventure tourism, the benefits of establishing a safety culture and improving operational standards of your people and equipment quickly show in the company performance and the confidence of the tourists using your product.

"My hobby is motorsport, and has been for 40 years, as a driver of Tier One production cars and as part of a team running in the Aussie V8 Super Cars.

"Safety in motorsport is paramount, as it is in aviation.

"With the growing market of adventure aviation now well established in New Zealand tourism, we need to ensure the ongoing development of a strong safety culture for these activities as part of an important tourism profile for our country," Jim said. ■

New Role for ACAG

The Aviation Community Advisory Group (ACAG) now has a broader and more active role in providing input into the CAA's policy and regulatory functions, under new Terms of Reference.

The ACAG's membership structure has also been changed to make it more representative of the aviation industry.

The new Terms of Reference were agreed on by the CAA and representatives of the aviation industry in December.

CAA Principal Policy Adviser, Lisa Sheppard, says, "The revised ACAG role reflects a wider change in the way the CAA is looking at regulatory issues. We need to be smarter about identifying the real problems in the system and exploring the most effective ways to resolve them. Working together with the aviation community from the early stages of policy development will help us do this."

ACAG Chairperson, Mike Groome, agrees, "The ACAG used to focus solely on the rule development process – but rules are not the only way to achieve aviation safety. Now we will help the CAA to identify and prioritise what the regulatory problems are, and provide expertise and advice on the best solutions."

The ACAG will have 12 members in all, with nine representatives from permanent member organisations and three elected from the wider aviation community.

An interim membership structure is currently in place. The ACAG annual elections are scheduled for November 2014.

The nine permanent industry organisations are:

Mike Groome, Chairperson	Flying New Zealand
Errol Burtenshaw	Air New Zealand
Mark Stretch	Airways Corporation of New Zealand
Rob Torenvilied	New Zealand Airline Pilots Association
Qwilton Biel	Aviation New Zealand
George Rogers	New Zealand Aviation Federation
Lachlan Thurston	New Zealand Airports Association
John Cook	Aircraft Engineering Association of New Zealand
Ian Andrews	Aircraft Owners and Pilots Association

Currently, the three elected members are:

Paul Drake, Deputy Chairperson	Canterbury Aero Club
Chris Snelson	New Zealand Warbirds
Max Stevens	Gliding NZ

Email Notification List

Subscribe to the new email notification list for ACAG-related matters to keep up to date.

If you already subscribe, you will need to add this list. There are links for new and existing subscribers on the ACAG web page, www.caa.govt.nz, "Policy and Rules – Aviation Community Advisory Group (ACAG)".

The Terms of Reference are also on the ACAG web page.

For any inquiries, contact Principal Policy Adviser, Lisa Sheppard, email: Lisa.Sheppard@caa.govt.nz. ■

Airways IFIS Web Site and New Mobile Apps

The Internet Flight Information Service (IFIS) has had a facelift – the web site has a refreshed look and is now easier to use. Also, new mobile apps with AIP and chart data are now available for use by general aviation pilots.

As part of an ongoing project to support aviation safety and improve usability, Airways has made changes to the IFIS web site, www.ifis.airways.co.nz. For example, news and updates now appear in a prominent noticeboard area within the blue banner.

Other improvements include:

- » amending the menus so that the most commonly used items appear in the top layer;
- » making “Help” information more prominent via links;
- » adding a page footer menu;
- » integrating access to the AIP Shop;
- » introducing ‘breadcrumbs’, enabling users to navigate back to previous menu pages.

Paul Hartley, recreational pilot and Airways simulator pilot, said, “The changes to IFIS are great – the whole thing looks a lot more modern and the set-up is much more intuitive.”

Mobile Applications

In response to consistent feedback from the general aviation community wanting access to charts and *AIP New Zealand* via their mobile tablets, Airways has licensed four mobile application providers, three for AIP and chart content, and one for chart content only.

- » **Air Navigation Pro** (www.xample.ch/air-navigation/): AIP AD charts (Vols 2-4), Enroute and Visual Navigation Chart (VNC) content.
- » **OzRunways** (www.ozrunways.com) and **AvPlan** (www.avsoft.com.au): complete AIP (Vols 1-4), Enroute and VNC content.
- » **RunwayHD** (www.airboxaero.com/nz/): VNC content.

Each application offers different functionality to the end user. Note that these apps are provided on an annual subscription basis.

Trent Clarke, Airways’ Manager of Aeronautical Information Management, says Airways has altered its AIP source-file structure and set-up processes so that licensed app providers can regularly access data updates.

“The provision of pending data 28 days before the effective date ensures that their apps remain current and enables users to familiarise themselves with significant operational changes before they happen. This preparedness contributes to aviation safety,” Trent says.

The AIP continues to be available free of charge on the AIP web site, www.aip.net.nz.

Airways chose the cost-effective solution of providing data to these aviation app developers, rather than building their own app. This approach means general aviators can make their own choice of which to use.

Mark Adeane, Airways Navigation Procedures Designer and general aviation pilot, has checked out both the Air Navigation Pro app and the Beta version of OzRunways for New Zealand.

“Both apps offer an excellent range of features to support the pilot, while reducing cockpit clutter. These apps are game-changers for the GA pilot!” Mark says.

Trent Clarke says, “General aviators demand simplicity and convenience in pre-flight and in-flight processes. Airways is committed to ensuring that critical information remains readily available to support aviation safety, while continuing to strive to be innovative.”

Airways would like to hear your feedback regarding these changes – please email info@airways.co.nz. ■

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Inspections for Non-Certificated Flight Trainers

Non-certificated flight training operations will soon be undergoing inspections by staff from the CAA Personnel and Flight Training Unit.

These inspections will include a review of the flight training organisations and their flight operations, personnel, aircraft, and engineering.

There are over 30 flight training providers involved. This is also a chance to look at current operations, and discuss future trends and ideas.

John McKinlay, CAA Manager Personnel and Flight Training, explains the reasons for the inspections, and the process involved.

"While our Unit's major focus is on surveillance of Part 141 certificated flight training providers, we are also responsible for the oversight of other organisations conducting flight training under Parts 61 and 91.

"Our emphasis will be on education and inspection, and to



meet with operators so that we can be assured of their flight training standards, levels of compliance, and the safety culture of their flight training organisations.

"The inspection may highlight some areas of deficiency in the operation, which will be raised with the operator and resolved through voluntary compliance with the associated rules and practices.

"In the unlikely situation where voluntary compliance cannot be achieved, a more assertive regulatory intervention may be necessary," says John.

The initial contact and education time will not attract a charge but the inspection and any remedial activities will.

Operators will be contacted soon to establish dates and times. ■

Low-g Response

In the November/December 2013 issue, we featured an article by guest contributor Simon Spencer-Bower, discussing the effects of low g-loading on helicopters with two-bladed teetering rotors.

We invited comment, and have received one substantive contribution from Russell Cross, a former RNZAF helicopter and fixed-wing instructor, and Mount Cook Airline pilot. Russell, although 'retired' after flying over 23,000 hours, still maintains currency on Robinson helicopters.

Russell's letter was too long to publish in full, but the main points, largely clarification of some technical areas, are summarised here.

Where Simon says that the helicopter drifts in the opposite direction to tail rotor thrust, Russell points out that it drifts in the *same* direction (this is analogous to the thrust vector and the resulting movement on an aeroplane).

Russell felt that cyclic effectiveness needed some amplification. Regardless of g-loading, the rotor disc will respond to cyclic input within about one revolution to alter the tip path plane. In a low or negative-g situation, it is true that there will be little or no force generated to change the fuselage attitude.

"The overriding goal for a pilot in a negative-g event, especially when accompanied by uncommanded roll, must always be to keep the disc parallel to the fuselage floor," says Russell.

"A negative-g event is transient by nature. That is, a negative-g event that results in a roll to the right is fleeting in time because the nose soon drops and the helicopter quickly re-establishes normal g-loadings. Assuming the pilot was able to keep the disc parallel to the fuselage floor, the helicopter can quickly resume normal attitudes, but this is not to say the recommended recovery technique should not be applied."

Russell is definitely not an advocate of any deliberate demonstration or exploration of the low-g regime, citing Robinson Safety Notice C11.

Russell observes in closing, "We together as an industry should benefit from Simon's article, if only to pause and reflect where we're at and where we're pointing on the subject of low-g demonstration and recovery." ■

Search for Excellence

The Director of Civil Aviation is now calling for nominations for this year's Director's Awards, and Flight Instructor Award.

Here's your chance to nominate a person, or an organisation, for displaying professionalism, raising safety awareness, and encouraging others in the aviation community to do the same.

Send a few paragraphs saying why your nominee(s) should receive one of these awards.

Email:
Bill.Sommer@caa.govt.nz

Fax:
+64 4 569 2024

Post:
PO Box 3555,
Wellington 6140

**Nominations close
Monday 16 June 2014.**



IA Certificate Renewals

Certificates of Inspection Authorisation, unlike AME licences, are not 'lifetime' documents – they have a specific validity period. Some IA certificate holders have had to re-inspect their work because their certificate was invalid at the time of the original inspection.

The certificates are normally valid for five years. For renewal, completion of a refresher course is required, but to complete the process, CAA form 24066/10 and payment must be sent in to the CAA.

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
14 Apr 2014	21 Apr 2014	26 Jun 2014
12 May 2014	19 May 2014	24 Jul 2014
9 Jun 2014	16 Jun 2014	21 Aug 2014

See www.caa.govt.nz/aip to view the AIP cut-off dates for 2014.

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.

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Mobile: +64 27 285 2022
Email: Bob.Jelley@caa.govt.nz

Report Safety and 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-MZM AutoGyro Europe Calidus Fern

Date and Time:	17-Jun-12 at 16:10
Location:	Tauranga
POB:	2
Injuries:	0
Damage:	Unknown
Nature of flight:	Training dual
Pilot Licence:	Commercial Pilot Licence (Aeroplane)
Age:	71 yrs
Flying Hours (Total)	18,000
Flying Hours (on Type)	200
Last 90 Days:	60

The instructor was demonstrating the low-speed manoeuvrability of the gyrocopter on approach to a forced landing.

He applied full throttle to go around but there was insufficient power to arrest the descent. The gyrocopter continued descending and was ditched in Tauranga Harbour.

[CAA Occurrence Ref 12/2586](#)

ZK-IBK Kawasaki BK117 B-2

Date and Time:	03-Apr-13 at 19:00
Location:	Wellington Hospital
POB:	4
Injuries:	0
Damage:	Substantial
Nature of flight:	Air ambulance
Pilot Licence:	Airline Transport Pilot Licence (Helicopter)
Age:	35 yrs
Flying Hours (Total)	3500
Flying Hours (on Type)	78
Last 90 Days:	75

During startup in gusty conditions, a main rotor blade struck the vertical fin. The pilot shut down the engine, but the wind caused another blade to strike the tail boom.

Conditions were conducive to blade sailing, with the ATIS at nearby Wellington Airport reporting the surface wind as 23 knots, gusting 40.

The wind at the helipad was subject to local effects of nearby buildings and terrain.

[CAA Occurrence Ref 13/1635](#)

ZK-HTQ Robinson R22 Beta

Date and Time:	10-Apr-13 at 12:00
Location:	Tarras
POB:	0
Injuries:	0
Damage:	Substantial
Nature of flight:	Private other
Pilot Licence:	Private Pilot Licence (Helicopter)
Age:	39 yrs

The pilot exited the helicopter with the engine running and the rotor engaged. The helicopter became airborne, spun around and struck the ground. While the helicopter was airborne, one tail rotor blade struck the pilot on his flight helmet. See related article "Flight Helmets are Good Insurance" in the September/October 2013 issue of *Vector*.

[CAA Occurrence Ref 13/1773](#)

ZK-HAM Robinson R22 Mariner

Date and Time:	03-May-13 at 9:50
Location:	Ross
POB:	0
Injuries:	0
Damage:	Destroyed
Nature of flight:	Private other
Pilot Licence:	Commercial Pilot Licence (Helicopter)
Age:	40 yrs

In preparation for a sling load exercise, the instructor vacated the helicopter after handing control to the student. He removed the left-hand door and was about 20 metres from the aircraft when the student also decided to get out. Within seconds, the helicopter lifted off by itself, struck the ground with the tail and main rotors, and destroyed itself. The student had not applied either of the two collective locks before vacating the helicopter.

[CAA Occurrence Ref 13/2159](#)

ZK-HWB Hughes 369E

Date and Time:	03-Feb-12 at 13:30
Location:	Taupo
POB:	1
Injuries:	0
Damage:	Substantial
Nature of flight:	Agricultural
Pilot Licence:	Commercial Pilot Licence (Helicopter)
Age:	47 yrs

The helicopter was on the ground with the rotor turning and engine at ground idle. As the support truck and trailer were driven away from the helicopter, the loading equipment on the trailer contacted the main rotor blades.

[CAA Occurrence Ref 12/587](#)

ZK-MIT Cessna 185A

Date and Time:	24-May-13 at 15:40
Location:	Takaka
POB:	1
Injuries:	0
Damage:	Substantial
Nature of flight:	Private other
Pilot Licence:	Commercial Pilot Licence (Aeroplane)
Age:	25 yrs
Flying Hours (Total)	2430
Flying Hours (on Type)	175
Last 90 Days:	51

The aircraft was en route to Takaka after dropping some passengers off at an airstrip about 14 NM to the west of Takaka. The engine failed after 10 minutes' flight time, and the pilot made a forced landing in a paddock about 3 NM north-west of Takaka Aerodrome. The left main undercarriage leg folded after a ground roll of 50 metres, and the aircraft came to rest on its cargo pod, the propeller striking the ground in the process.

The pilot reported that he had established that the fuel quantity by dipstick before leaving the strip, and had a total of 55 litres on board. During the recovery operation, there was evidence of a substantial quantity of fuel having been on board at the time of the forced landing.

Subsequent engineering investigation found a quantity of fine ferrous material in the fuel filter and gascolator, as well as in the wing tank bladder folds and fuel lines.

There was no evidence of this contaminant in the fuel drum and pump the pilot had used at Takaka, but three jerrycans that were used before the flight contained the same material. These cans had been filled at Feilding three weeks earlier, but examination of the Feilding fuel facility found no trace of the ferrous material.

No other aircraft had been similarly affected, and the source of the contamination remains unknown.

[CAA Occurrence Ref 13/2635](#)

ZK-ELO Cessna R172K

Date and Time:	27-Nov-11 at 15:15
Location:	Maraekakaho
POB:	4
Injuries	0
Damage:	Substantial
Nature of flight:	Private other
Pilot Licence:	Private Pilot Licence (Aeroplane)
Age:	51 yrs
Flying Hours (Total)	582
Flying Hours (on Type)	557
Last 90 Days:	6

The pilot made a late decision to go around on approach to a farm airstrip. The aircraft was unable to out-climb the rising terrain ahead and landed heavily in an adjacent paddock. The undercarriage collapsed and both wingtips and propeller struck the ground.

[CAA Occurrence Ref 11/5336](#)

ZK-NPK Cessna 152

Date and Time:	07-Dec-11 at 19:07
Location:	New Plymouth
POB:	1
Injuries	0
Damage:	Substantial
Nature of flight:	Training solo
Age:	46 yrs
Flying Hours (Total)	41
Flying Hours (on Type)	41
Last 90 Days:	11

A student pilot on his first solo crosswind landing did not anticipate the effects of mechanical turbulence created by a small gully just short of the runway threshold. The pilot stated the aircraft "seemed to drop onto the runway" and he did not recover quickly enough to prevent it landing heavily on its nose wheel and bouncing. The aircraft came to rest on its nose further down the runway. The student pilot had made several successful dual crosswind landings earlier in the day.

[CAA Occurrence Ref 11/5442](#)

ZK-FWF Quickie Aircraft Q200

Date and Time:	18-Jan-12 at 7:40
Location:	Tauranga
POB:	1
Injuries	0
Damage:	Substantial
Nature of flight:	Test
Pilot Licence:	Airline Transport Pilot Licence (Aeroplane)
Age:	54 yrs
Flying Hours (Total)	14,000
Flying Hours (on Type)	0
Last 90 Days:	60

The pilot was making a low approach with the intention of overshooting, when sink was encountered on short final. The aircraft struck an approach light pole, and slid to a stop close to the runway threshold.

[CAA Occurrence Ref 12/157](#)

ZK-HYR Robinson R22 Beta

Date and Time:	30-May-13 at 10:00
Location:	Rangiora
POB:	1
Injuries (Minor):	1
Damage:	Substantial
Nature of flight:	Training solo
Pilot Licence:	Commercial Pilot Licence (Helicopter)
Age:	40 yrs

After landing on a suitable area on the aerodrome, the instructor vacated the aircraft to allow the student to carry out solo hover exercises. The instructor's intention was for the student to become familiar with the feel of the helicopter with only one person on board. The helicopter lifted off in a nose-low attitude, then moved abruptly rearwards. The heel of the left skid dug into the ground, resulting in a dynamic rollover.

[CAA Occurrence Ref 13/2713](#)

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

Hughes 369E

Tail rotor blade

Part Model:	MD369E
Part Manufacturer:	Helicopter Technology Corp
Part Number:	500P3100-301
ATA Chapter:	6410

The maintenance provider had ordered a replacement tail rotor blade for a 4-bladed system. The blade, which was later found to be for a 2-bladed system, was delivered to a 337 holder to have a modification carried out on the bearings. Following modification, the blade was delivered on a Saturday and installed. Ground runs were conducted and were found to be satisfactory.

At 100 hours time in service, it was found that the part had been incorrectly installed. The blade, which was coloured white with red stripes, was the incorrect part number and only fitted as a result of the modification to the bearing. The 4-blade system blades are painted red with white stripes. The blade was removed and replaced with the correct part.

CAA Occurrence Ref 13/6523



KHI Kawasaki-Hughes 369D

Drive fork retaining nut

Part Number:	HS1551S238
ATA Chapter:	6510
TTIS hours:	268

While ferrying the helicopter to the maintenance facility for a tail rotor assembly change, the pilot reported a high-frequency buzz through the pedals. The tail rotor drive fork retaining nut was found loose, with the lock washer found sheared on the inner tang.

CAA Occurrence Ref 13/2639

Beech A36

Gear motor/control solenoid

ATA Chapter:	3230
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On approach, the pilot noticed that the "landing gear" and the "gear in transit" lights were illuminated at the same time. A visual check by another pilot indicated that the nose gear was retracted and the main gear was about 40 per cent extended. The pilot vacated the circuit and recycled the gear but as this was unsuccessful, used the manual extension method to lower the gear.

Maintenance investigation found that the landing gear motor solenoid was defective, and the brushes in the landing gear motor were worn and burnt.

CAA Occurrence Ref 13/2155

Kawasaki BK117 B-2

No 2 bearing

ATA Chapter:	7200
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The No 2 engine chip light illuminated after start, with an audible rumbling noise also evident. The engine was shut down and the flight cancelled. A significant amount of debris was found on the chip plug.

The engine was removed, and the engineering inspection found that the reason for the chip light was failure of the No 2 bearing. This effectively allowed the gas producer section to rotate out of limits. The engine was returned to the manufacturer for further investigation.

CAA Occurrence Ref 13/2660

Cessna 172P

Accelerator pump nozzle

ATA Chapter:	7320
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On initial climb through 600 feet, the engine began to run rough and the rpm reduced to 1200. Carburettor heat was applied immediately, but there was little or no response. The pilot made a reversal turn for the reciprocal vector, and as there were sporadic bursts of power, closed the throttle once landing was assured. During taxi to the apron, the engine continued to run rough.

During maintenance investigation, fuel samples were taken and checked and the fuel tank interiors were examined for possible contamination. None was found.

Several engine runs were carried out, and the rough running occurred once, when the throttle was advanced. On removal of the carburettor, the accelerator pump discharge nozzle was found to be missing from the venturi. The carburettor was sent for repair, and later refitted.

Subsequent extensive engine runs were carried out and all were satisfactory. The aircraft was released for operational check flight, on which it performed normally, and was released to service.

CAA Occurrence Ref 13/1768

Alpha R2160

Starter solenoid

ATA Chapter: 8010

During dual spin training, the engine stopped when recovery was initiated. Attempts to restart the engine using the starter or increased airspeed were unsuccessful. The crew transmitted a MAYDAY call, turned on the ELT, and planned for a forced landing into a paddock. During the landing, the aircraft ran through a wire fence across the paddock, causing minor damage to the nose undercarriage.

Maintenance investigation found that the battery positive lead was loose. The engine started successfully after this was tightened. It was also later found that the starter motor solenoid was intermittent in operation and that the starter relay was corroded internally. The starter was sent for repair and the starter relay was replaced. The damaged nose landing gear oleo fairing, steering lock rod, and guide were replaced.

The training provider has amended spin training procedures to require recovery after three turns, to help prevent engine stoppage due to the effects of the spin.

CAA Occurrence Ref 13/1409

Aerospatiale AS 355 F1

Emergency cut-out switch

ATA Chapter: 2400

During flight, all electrical power was lost. The generators were checked, confirmed 'on' and there were no warnings on the central warning panel. The pilot elected to return to land at base.

Despite extensive fault finding and defect investigation no definite cause for this defect was determined. However, the loss of power occurred after 47 minutes' flight, which is the battery endurance, suggesting that the starter-generators never came on line, or disconnected early in the flight. This could have been caused by poor contacts found on the emergency cut-off switch bases. Additionally, poor connections to the annunciator panel could also have caused the starter-generator warning lights not to illuminate.

The combination of these two potential faults was the most likely reason for the occurrence.

CAA Occurrence Ref 13/2687

Cessna 172R

Fuel control unit

Part Model: IO-360

Part Manufacturer: Lycoming

ATA Chapter: 7320

On application of full throttle at 300 ft agl following EFATO practice, the engine developed only partial power at 1900 rpm. The aircraft was levelled off and after the airspeed increased, a climb performance of 100-200 ft/min was achieved, and the aircraft was slowly climbed downwind to 900 ft amsl. A normal, powered approach was carried out from downwind. Trouble checks included slightly leaning the mixture with no change observed, and activation of the auxiliary fuel pump did not rectify the situation. Higher than normal (and rising) exhaust gas temperature (EGT) was also observed.

During maintenance investigation, the engine was ground run and an adjustment was made to the engine fuel system in accordance with Lycoming IO-360 OM chapter 5-4. Static RPM now 2300.

CAA Occurrence Ref 13/1228

Diamond DA 40

Fuel control unit

Part Number: 5100-00-9

ATA Chapter: 7320

When a climb was initiated from 1500 feet, the aircraft began to vibrate heavily with the No 1 cylinder EGT rising rapidly to 400 degrees. The aircraft returned to land without incident.

The maintenance provider advised that the aircraft had had several reports of engine vibration and RPM fluctuations which could not be replicated on the ground. Following this incident, the fuel control unit (FCU) was replaced and there have been no further reports of vibration.

During the bench strip of the faulty FCU, the mixture plates and idle valve were found to be scored, possibly from fuel contamination. It has been found that wear particles from Dukes fuel boost pump vanes can lead to contamination, which causes this type of scoring within the FCU. The operator is currently undertaking a programme to replace the Dukes fuel pumps P/N 5100-00-9 with Weldon fuel pumps P/N 18002B.

CAA Occurrence Ref 13/2935

Diamond DA 42

Gearbox oil hose

Part Manufacturer: Diamond

ATA Chapter: 7920

The L GBOX TEMP warning caption appeared briefly on the primary flight display after a climb, indicating a gearbox oil temperature exceeding 120 degrees C. The pilot reduced power and began a descent to reduce the gearbox temperature, and made a PAN PAN call. The gearbox temperature started to reduce but the pilot noticed that the expected engine power output had also decreased, and decided to shut down the engine. A safe asymmetric approach and landing was carried out.

Maintenance investigation found the gearbox hose that supplies oil to the propeller drive clutch to be ruptured. The fault was notified to the manufacturer, who is developing a modified hose. This is the third instance of this type of failure.

The operator is also currently seeking modification approval for a locally-manufactured hose as a replacement for the OEM item. In the meantime, the maintenance provider is carrying out a detailed examination of installed hoses during scheduled inspections.

CAA Occurrence Ref 13/1005

Kawasaki BK117 B-2

Beep switch

ATA Chapter: 7600

During takeoff, the torque meter indicated a decrease on No 1 engine, and an increase on No 2. The "engine out" audio warning activated, and the takeoff was abandoned.

The N2 "beep" switch was found to be defective and was replaced.

CAA Occurrence Ref 13/2614

Personal Preflight

Are you ready to fly?



You've completed your planning, the aircraft is ready, but have you completed your *Personal Preflight*?

You would never fly an unsafe aircraft, but are **you** in top condition?

The safety of every flight hinges on the competency of the pilot. If you're off your game, whether it be a cold, new medication, you're tired, got a hangover or worse, then your ability to make important decisions is compromised.

Come along and get the truth about what you are putting into your body, and how you can get yourself as sharp as possible before flight.

At the seminar, you will have access to supporting material such as online tools to check your readiness for flight.

AvKiwi Safety Seminars are free to attend.

North Shore

Wednesday 21 May, 7:00 pm
North Shore Aero Club

Kerikeri

Friday 23 May, 7:00 pm
Bay of Islands Aero Club

Whangarei

Thursday 22 May, 7:00 pm
Whangarei Flying Club, Hangar 10

Gisborne

Monday 9 June, 7:00 pm
Gisborne Aero Club

Auckland

Tuesday 20 May, 11:00 am
Ardmore Flying School
Tuesday 20 May, 7:00 pm
Auckland Aero Club

Hamilton

Sunday 18 May, 5:00 pm
CTC Aviation Training,
131 Boyd Rd
Followed by pizza supper
Monday 19 May, 7:00 pm
Waikato Aero Club

Tauranga

Tuesday 10 June, 7:00 pm
Tauranga Aero Club

Taupo

Wednesday 11 June, 7:00 pm
Suncourt Hotel and Conference
Centre – 14 Northcroft St

Motueka

Thursday 1 May, 4:15 pm
Nelson Aviation College

Nelson

Wednesday 30 April, 7:00 pm
Nelson Aero Club

Blenheim (Omaka Aerodrome)

Friday 2 May, 7:00 pm
Marlborough Aero Club

Dannevirke

Friday 13 June, 7:00 pm
Fountain Theatre
2 Ward St

Hastings

Thursday 12 June,
7:00 pm
Aerial Mapping Hangar
Hastings Aerodrome
(Bridge Pa)
Followed by refreshments
at Hawke's Bay and East
Coast Aero Club

Invercargill

Monday 31 March, 7:00 pm
Southern Wings, Airport Avenue

Ashburton

Friday 4 April, 7:00 pm
Mid-Canterbury Aero Club

Oamaru

Wednesday 2 April, 7:00 pm
North Otago Aero Club

Timaru

Thursday 3 April, 7:00 pm
South Canterbury Aero Club

Dunedin

Tuesday 1 April, 7:00 pm
Mercure Dunedin Leisure Lodge Hotel
30 Duke Street