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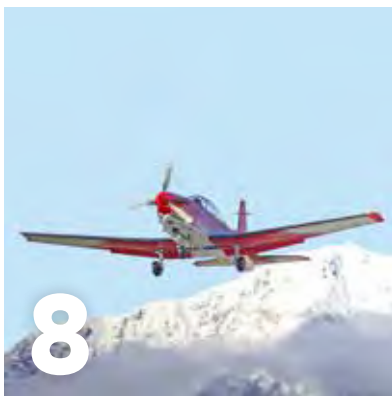


SAFETY IN HELI OPS

Flying
near Mount
Stupid

Space
weather

Staying
staunch in
the storm



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Published quarterly at the beginning of each season

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From the Director

As some of you may have seen in recent media reports, the Civil Aviation Authority is currently going through a period of significant change.

The main thing you'll notice changing over the next few months is the authority's staffing structure which is being substantially changed as part of our organisational design review.

This restructure will ensure that as the regulator we are well positioned to meet the challenges of a rapidly evolving aviation system and all the emerging technologies and practices that come with it.

I've also heard from many people in the aviation community that their interactions with the authority have lacked consistency.

The changes under way will address that lack of consistency and remove some of the silos within our organisation that have at times made it hard for us to respond quickly to changes in the system. It's a big step in our work to continually improve the way we oversee the civil aviation sector.

One of the new groups in the authority structure will be the aviation safety group, that will create new, separate units for certification; inspection and monitoring; investigation and response; and licensing and standards.

Another new group is the stakeholder and sector engagement group, that will lead our engagement and education activities.

You may see us advertising for some newly created positions in the near future – we'll make sure to keep you posted through the *CAA Briefing* as we make our key appointments.

Regards,

Graeme Harris

“PEOPLE NOT PLANES”

The Chair of the Authority, Nigel Gould, wants us to imagine civil aviation in 2024 without deaths or injuries.

With the wellbeing and safety of people as the CAA's ultimate goals, the adoption of the philosophy of 'people, not planes' will guide the CAA's work over the next five years.

This reflects the wider transport sector's programme to improve New Zealanders' wellbeing and the liveability of their places.

The CAA's specific goals are outlined in its recently released *Statement of Intent 2019–2024*. Go to www.caa.govt.nz and search on *Statement of Intent*.

Those goals are:

- accidents, deaths and injuries in civil aviation to decrease, and their social cost lowered
- New Zealanders' confidence that they are safe and secure in the aviation system to increase
- decreased greenhouse gas emissions
- minimised aviation-related barriers to people and products getting places
- reduced risk (due to the implementation of safety management systems)
- that there are few or no security incidents.

Nigel Gould says the ultimate reflection of that would be a death and injury-free 2024.

“If we don't set safety goals at zero, we send the message that we'll tolerate a few injuries each year; that severe, disabling and even fatal injuries are acceptable.”

Nigel says to achieve what is currently only imagined means continually improving CAA's regulatory functions. For Avsec, it will be about managing change and growth while maintaining “its excellent service and security standards”.

There are many challenges ahead, Nigel says, but we need to “meet those challenges confidently, and keep the public – whether they're in the air or on the ground – safe from harm”.



SAFETY IN HELI OPS



The current accident rate in some commercial helicopter operations remains a concern for the CAA.



The latest statistics indicate the safety of passenger-carrying operations in helicopters has improved greatly in the last four years.

Those same stats, however, indicate a rise in accidents in ‘other commercial operations – helicopter’* particularly in external load work, and during training.

Grant White – former Flight Operations Inspector with the CAA’s helicopter and agricultural unit – says turning the stats around has to focus on human factors.

“New Zealand has an accident rate significantly higher than that of other parts of the world.

“There are many possibilities as to why the rate is so high but the common denominator to most of these accidents is the human.”

Despite this, Grant says it was surprising the number of candidates applying for senior person positions, who didn’t mention ‘the pilot’, when Grant would ask, ‘why do you think the rate is so high?’

“Most of them talked about weather, terrain, environment, and types of operation. Very few mentioned human decision-making and attitude.”

Flight Operations Inspector Vicki Coats agrees, saying poor decision-making is a common factor in accidents in the helicopter sector.

“It’s not the aircraft making decisions about mountains, the weather, the load to be carried, or the manoeuvre about to be performed.

“The aircraft doesn’t get beyond its limits, or distracted by client pressure and the next job to get to.

“It’s not the aircraft that thinks, in a moment of bravado, ‘I’ll show you what I can do’.

“Pilots can get themselves into strife by not considering the limits of their own performance. They see the weather coming in, but they think, ‘I can do it’.

“They don’t reflect on what could go wrong.”

Expect, and plan for, the unexpected

Former HNZ pilot Jason Kirkland says because of the versatility and wide range of operations a helicopter can carry out, pilots can find themselves operating in some very confined spaces, and dynamic and rapidly changing environments.

// At the time, it’s sometimes difficult to justify heading home not having completed the job – but there’s always tomorrow. //

“Often we’re out there on our own in some pretty extreme and changeable environments, having to make decisions while carrying out often quite demanding tasks.

“I think helicopter pilots in particular have to be prepared and learn to expect the unexpected.”

Flight Operations Inspector Pete Gordon says that, particularly in emergency events, pilots can get caught up in the critical nature of the mission.

“They forget to monitor their hydration, nourishment, or tiredness. There’s been more than one occasion in New Zealand, when someone has failed to recognise their own limits in an emergency situation, and has had an accident.

“Apart from the distress of the accident itself, resources have had to be diverted to find the missing pilot and that has had a flow-on effect, ironically, to the management of the original crisis.”

Jason Kirkland says in VFR flying, the safety tolerances are harder to define than in IFR operations.

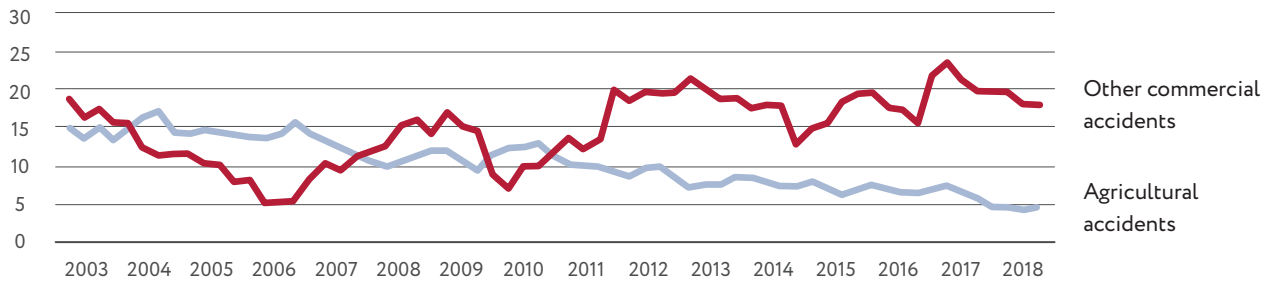
He would always plan his day in advance as best he could, with a clear set of personal rules and procedures, and an escape plan.

“Once flying, the environment is often dynamic, so I was constantly assessing the conditions to stay ahead of the game. »

* The CAA uses the term ‘other commercial operations’ for operations other than passenger-carrying transport, private, and agricultural. So operations like training, surveying and external loads.



Accident rates in New Zealand, agricultural and 'other commercial' sectors 2003–2018



Three yearly rolling average per 100,000



“I also tried to not get totally absorbed by the task, because the danger was that I’d miss the signs that it was time to turn around, or land as soon as possible.

“At the time, it’s sometimes difficult to justify heading home not having completed the job – but there’s always tomorrow.”

While many in aviation think New Zealand is unique in its mountainous terrain and weather, it’s not. There are many countries with similar topography and climate, but their accident rate is not as high as ours.

“Many pilots and operators blame the weather for causing accidents,” says Vicki. “But actually, our weather forecasting is pretty accurate, and frontal systems come and go relatively quickly.

“There aren’t many places in New Zealand that you’re beyond 10 minutes flying from a road you can put down on. There’s no real reason a helicopter pilot can’t decide to land and sit out 30 minutes of the front that’s passing through,” she says.

The downside of tech

Grant White says technology is a boon to flying but can be distracting.

“I’ve flown for companies overseas which have had four-person crews, and every one of those four has been head-down staring at the bells and whistles.

“A lot of the information provided by technology you don’t need, no matter how engagingly it’s presented.

“What you do need, is to know exactly what’s going on outside. Cross-check everything you are reading on your devices with what you can see for yourself.

“Technology might be able to do that for the pilot of the average aircraft one day, but it can’t yet.”

The role of fatigue is under-appreciated

Pete Gordon says fatigue is the great under-considered factor in accidents.

“It’s so hard to identify as the definitive cause of an occurrence.

“Obviously any operator will have a contingency plan if anyone turns up to work obviously fatigued or distressed or ill.

“But co-workers are important too. Keep a lookout for everyone else who may be going through something. Sometimes all it takes is the question, ‘hey – are you okay?’

“That might open the door to them talking about their problem, which may open the door to a solution.”

Health and safety law charges each worker to take responsibility for their own welfare as well.

“If you’re in a stressed state, it’s hard to concentrate on the task at hand,” says Grant White.

“You shouldn’t fly at all. But if it’s unavoidable, it’s crucial you put the problem in a box, and focus on the job.

“After all, what’s more important? You ruminating on the personal problem and trying to carry out a high-performance task like flying at the same time?

“Or coming home safely?” ➔

// FIND OUT MORE

Many of the themes in this *Vector* article are also themes in the Part 135 Sector Risk Profile. To read more, visit www.caa.govt.nz/srp.

BIANCA BARBARICH-BACHER WINS INAUGURAL YOUNG AVIATION PROFESSIONAL AWARD

Mount Cook first officer recognised for her leadership in developing safety initiatives.

Authority Chair Nigel Gould, who presented the award, said it celebrated young people in aviation who've made an outstanding contribution to safety.

The presentation, at an Aviation NZ ceremony in early August, marks the first time the work of a young New Zealander (18–30) has been recognised in such a way. The new honour replaces the Director's Awards.

Twenty six-year-old Bianca holds an honours degree in mechanical engineering, a commercial pilot licence, and a B-cat instructor rating. She recently started with Mount Cook Airline as a first officer on the ATR72-600.

For the last two years she's been a line pilot with RidgeAir, and an instructor at Marlborough Aero Club in Blenheim.

Alongside RidgeAir's chief pilot, Ross McCullum, Bianca was instrumental in writing that company's manual for performance based navigation (PBN), and for a new safety management system, seeing it through the certification process.

She was also a key member of the New Southern Sky PBN National Expo, flying the team around the country in RidgeAir's PBN-equipped Piper Seneca to demonstrate the benefits to operators.

At Marlborough Aero Club, Bianca was appointed safety officer, and in this capacity she created a formal Standard Operating Procedures manual for the club, as well as a safety reporting system framework.

Bianca believes that while it's important that leaders of an organisation promote a safety culture, ultimately the test is in whether staff at all levels are engaged and truly buy in to the concept.

"A safety culture in aviation is often described as how an organisation behaves when nobody is watching, and for this reason, it needs to be built from the ground up," she says.



// Bianca Barbarich-Bacher (photo supplied)

Flying is in Bianca's genes: her mother, the late Ann Barbarich, was a pioneer in the aviation industry. She was one of the first female pilots to work for Air New Zealand and served 27 years with the airline. Bianca recently instructed her younger brother Alex to a successful PPL flight test at age 17.

"I feel very honoured to have received this award," she says. "Aviation is a fantastic career path – from instructing and flying commercial operations to safety and policy projects, there is so much variety on offer. The aviation community as a whole is incredibly supportive and I have benefited from numerous mentors along the way."

A second award finalist, 28-year-old Josh Haslemore was recognised for his significant volunteer work developing a modern safety culture within the Coastguard Auckland Air Patrol.

And Jack Scott, 18-year old CEO of NZ Drones, was chosen as a finalist for the high safety standards he has established in his business, including a safety management system, a drug and alcohol policy, and a schedule for reporting to the CAA. ➔



FLYING NEAR MOUNT STUPID

Mount Stupid is a term associated with the ‘Dunning-Kruger effect’ – someone inexperienced, failing to accurately recognise the level of their (in)competence.



The Dunning-Kruger effect – also called ‘illusory superiority’ – is the false impression that someone new to a task, has of their skill at that task.

Not everyone new to a task has illusory superiority, and not everyone with illusory superiority is new to a task.

But generally speaking, it’s new-timers who have it.

Social psychologist David Dunning says incompetent people cannot recognise how incompetent they are.

“For poor performers to recognise their ineptitude would require them to possess the very expertise they lack,” he says.

“What’s curious is that, in many cases, incompetence does not leave people disoriented, perplexed, or cautious. Instead, the incompetent are often blessed with an inappropriate confidence...”

New aviators are not immune to this. The American aviation author, Paul A Craig, says that during the period when a newly minted pilot is building experience, they seem to be caught between two worlds.

“On the one hand they are fully licensed and legal pilots, but on the other hand they’ve not had the opportunity yet to learn from experience.”

Paul says that when he had finished his private pilot test, his examiner said, “I’m going to give you your licence to learn”.

He didn’t really understand at the time what the examiner meant. After all, he’d passed his test and was a fully-fledged pilot!

“I was so naïve,” he writes. “I thought all the learning took place while preparing for the test and that the learning stopped after the test. I was not only inexperienced as a pilot, but I also had an inexperienced attitude.”

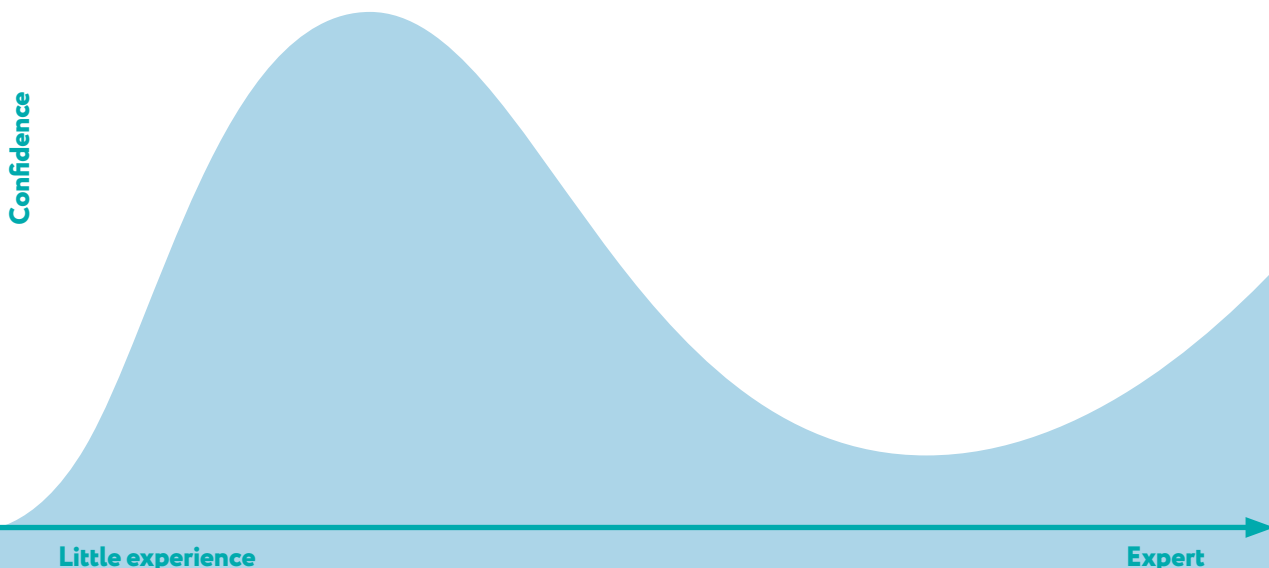
That attitude is characterised as ‘level one’ thinking by the FAA’s runway safety specialist, Alan Gorthy.

Gorthy, a retired US navy attack pilot, argues there are four levels of competency in single-pilot decision-making. A level one pilot is so inexperienced they don’t even know what they don’t know. At level two, the pilot has had just enough scares to know what they don’t know and wants to fill those gaps. At level three, despite having filled the gaps, the pilot continues to seek out knowledge and challenges. A level four pilot has become a ‘natural’, and having reached the apex of flying skill, can handle normal, abnormal and emergency procedures.

But, says Thomas P Turner, of US-based Mastery Flight Training, the lack of experience of a new pilot means that “flying as a level four ‘natural’, and being a level one thinker, feel a lot alike”. »

MOUNT STUPID

‘Mount Stupid’ was coined by the creator of the web comic, *Saturday Morning Breakfast Cereal*, Zach Weinersmith.



Avoiding the mountain

So how can a newly licensed pilot stand back from their achievement to acknowledge their lack of experience?

This is what David Dunning advises. “Be your own devil’s advocate. Ask yourself how you might be wrong, or how things might turn out differently from what you expect... Consider ‘the opposite’. Seek advice.”

The CFI of Ardmore Flying School, Warren Sattler, has more than 30,000 hours flying experience.

“On getting their PPL, I often ask students to reflect on when they got their driver’s licence and ask, ‘how long did it take after that test before you gave yourself a fright, have an accident, or get a speeding ticket?’

“Virtually all of them own up to an incident, so I take that opportunity to remind them that flying will be no different.”

Alister ‘AB’ Buckingham – a former accident investigator for both the Transport Accident Investigation Commission, and the CAA – has advice for low-hours pilots who’ve acknowledged their lack of skill and want to build valuable experience quickly.

“Sandbagging hours – that is, just going for a standard fly to build flying hours – is not a productive way to gain experience.

“Try instead to extend your skill. For instance, if you’re solo, practise accuracy. If you’re aiming to fly at 3000 ft, make sure the big hand is bisecting the zero. Or if your goal is to fly at 80 kts, fly so the needle is dead on 80, not 81, or 79.”

AB, who has 4500 hours helicopter flying, and 3500 fixed wing, also says pilots should know the limitations of their aircraft.

// The day you think you know it all is the day you’re going to kill yourself. //

// FLYING RIGHT

Writing in 2015 for *Flight Safety Australia*, Thomas Turner said the most-skilled pilots drift between Gorthy’s level three and four thinking.

“They have learned a great deal about safe flying and decision-making ... and they employ well-reasoned limits on the risks they’ll accept ... but actively seek new skills and knowledge.

“Sadly, the culture of flying often idolises the pilot who ‘knows it all’ and ‘can fly anything with wings’ when in fact such a pilot is often on the lowest level of Gorthy’s scale of judgment.”

“Explore those limitations if necessary, particularly how it performs at low speed. It’s on final that you can screw it up.

“Get to know your aircraft systems intimately, especially the fuel system. And whenever you can, practise stalling – get a real feel for how the aircraft performs.”

Paul Craig agrees that new pilots need to increase the quality of their flying experience, not just add hours.

“All flight hours are not the same. You receive greater benefit toward airmanship when the challenge is greater.

“An hour seeking an advanced rating is worth more than an hour of personal flying. In general terms, an IFR flight is more valuable than a VFR flight. A night flight is worth more in experience gained than a daytime flight. A flight into busy controlled airspace is more helpful than a flight into an uncontrolled aerodrome.

“An hour in a complex aeroplane teaches more than an hour in a fixed gear, fixed pitch aircraft. Winter usually is more challenging than summer. A crosswind teaches more than a calm wind. You learn more on an instrument approach than on a visual approach. You get better weather planning when the weather is marginal than when it is beautiful.”

He recommends a five-year plan to improve flying skill, for instance, setting out to achieve a new rating. He advises being active in ongoing flight training.

“Go to safety seminars, take aviation courses at a college, get into a ‘wings’ programme.” (Flying NZ runs a Pilot Proficiency Scheme allowing GA and microlight pilots to continue with valuable upskilling.)

Paul Craig also suggests playing the ‘what-if’ game with another pilot, or group of pilots. What would each do if suddenly the engine started running rough, or cut out after take-off, or the radio became inoperative?

There may not always be one answer, and more than one may be right.

“If some day in the air, one of these what-ifs comes true, you will be better prepared,” Paul says.

Next, read, read, read.

Warren Sattler says there’s a plethora of written resources that all new pilots – indeed, all pilots – should make constant use of.

“Overseas websites, *Vector* magazine, the CAA’s accident register – they all add to a pilot’s learning curve.”

It never ceases to amaze Warren how flight planning with an instructor can be done so well by a student, and then so disregarded in the ‘real world’ of flying.

“For instance, every year, pilots get caught out by the change in daylight saving,” he says. “They clearly have given no thought to properly planning their flight. They just turn up at the airfield to go for a fly – that’s the extent of their ‘planning’.

“And I’ve lost count of the times newly licensed pilots arrive to take their friends for a flight with no thought to useable payload – ‘it’s a four-seater isn’t it?’ is as much as they consider.”

Warren also has the following tips for training organisations.

“Observe a just culture, including establishing a de-personalised incident register.” Refresher courses based on that register, he says, are of enormous benefit.

“Link new graduates to more experienced and suitable pilots for mentoring, the more senior pilot answering questions and helping to resolve problems in a non-judgmental way.”

While Mt Stupid is usually referred to when talking about someone new to a task, David Dunning says we all have pockets of ignorance, and that continues to a certain extent our whole lives.

So it can be with more seasoned pilots.

As AB observes, “It’s a pretty poor day when you don’t learn something new.

“The day you think you know it all is the day you’re going to kill yourself.” ➡

REVISED ELECTRICAL STANDARD

A revised standard is designed to provide an improved level of safety when ground electrical equipment is connected to an aircraft.

The standard is NZS 6114 and Amendment 2 of Section 6 *Aviation electrical installations, facilities and equipment*.

The New Zealand standards system is used because the standard is about ground electrical supply and related equipment rather than the aircraft itself. The amendment is the result of extensive consultation with interested parties, and it applies to both civil and military aviation.

Section 6 applies to aviation electrical installations, facilities and equipment supplying or using electricity at voltages or frequencies other than ‘standard low voltage’ to:

- aircraft
- airport aprons
- aviation equipment
- aviation support, and
- aviation repair workshops.

It addresses the specific differences between the ground system and aircraft configuration – and builds a safety compliance bridge between the two disparate electricity regimes.

Having a standard will help airports and ground organisations meet their health and safety obligations.

It’s particularly helpful in providing licensed industrial electricians with guidelines when they operate in an aviation environment. ➡



PROFESSIONAL DEVELOPMENT FOR TEST PILOTS

Test pilots' opinions are pivotal to the approval of a modification. Now they have an opportunity to improve their skills.

The CAA is calling for expressions of interest in a planned series of workshops for later this year, dedicated to upskilling category 3 test pilots.

Such pilots test modifications to all types of aircraft, such as a new radio; how a stretcher fits; night vision capability; or a guidance/warning system.

The proposed workshop will include, among other topics:

- the responsibilities of the test pilot, including being 'the voice of the operator'
- planning a test flight which reflects the objectives of the engineers, and carefully follows the test schedule
- the importance of good communication so all parties have a mutual understanding of what's involved
- identifying, assessing, and controlling the risks associated with the test flight.

"Test pilots are critical members of teams who design, manufacture and certify aircraft modifications," says Tim Dutton, a CAA specialist in flight test engineering.

"They play a key part in ensuring that a modification is not only effective, but also meets relevant airworthiness criteria," he says.

"The purpose of test flying is to collect data correctly. That means the data must be robust and valid, so that equally robust decisions can be made about whether or not certification requirements have been met.

"Test pilots need to be critical thinkers able to provide objective feedback to the engineers. They need to be open-minded, assertive, and prepared to say, 'this is not acceptable, we need to go back to the drawing board'."

Jon Kerr is the chief designer and CEO of Hamilton-based Flight Structures, a Part 146 company.

Communication, he says, is "huge" in the modification approval process.

"There are so many parties involved: the design company; the maintenance organisation; the manufacturing facility; the test pilot; and the operator.

"So training a test pilot, who's at the centre of the whole process, how to communicate really well with all those parties, can only be a plus."

Jon says it's also good the workshop intends to build pilots' awareness of how to do a robust assessment of the risk surrounding the flight itself.

"It's important the pilot can effectively assess what could go wrong," he says.

// They need to be open-minded, assertive, and prepared to say, ‘this is not acceptable’. //

“If the pilot can learn to (a) properly assess the risk of what they’re being asked to do, and (b) communicate how they feel about that risk and what they want to do to mitigate it, they’re obviously very valuable skills.”

Jon says one of the most important things a test pilot can do is to consult with the operator – the end user – really early in the process.

“I’m really hot on the pilot getting the input of the crew who’re going to be actually using the equipment,” he says.

“The crew might say, ‘Well we can see what you’ve written here, we can see that the mod ticks off the rules and is compliant. But, actually, in reality, it doesn’t work that well.’

“Getting their opinion early on really smooths out the whole procedure.”

The workshop

The proposed one-day workshop is primarily aimed at pilots with little or no test flying experience who’ll be involved in Category 3 test flying in the future. But the workshop is open to – and would benefit – engineers, project managers, or anyone else who would like to know more about testing aircraft.

It will combine lectures, discussions, and exercises to explain basic flight test principles.

The emphasis will be on certification test flying and its associated processes.

Tim Dutton says participants will leave the workshop able to plan, conduct, and report on tests in a robust and methodical way.

“Hopefully they will have gained an understanding of the importance of conducting a test activity in a safe, effective, and efficient manner,” he says.

Jon Kerr is particularly pleased about the workshop including the importance of good communication skills, and involving the operator early on.

“The more people talk to each other,” he says, “the better things are. And the more time the test pilot spends talking to the end users, the better the flight test programme will be.”


If you’re interested in participating, email tim.dutton@caa.govt.nz. The dates and locations of the workshops will be decided based on the interest received. 



Photo courtesy of Flight Structures.

// This Flight Structures system in the new Auckland Rescue Helicopter Trust AW 169 has the stretcher in the transverse position for loading the patient, but then swivelling to the longitudinal position for flight. That allows the medical team substantially more room to work on the patient, including stabilising them during flight, rather than on the ground. That could save up to 30 minutes in delivery to the hospital.

SPACE WEATHER

The most interesting dangerous weather you've probably never had to think about – until now.

Space weather is activity on the sun's surface resulting in a great burst of ionising radiation and powerful magnetic fields being flung out into the solar system and, occasionally, towards Earth.

The Earth's atmosphere and magnetic field usually shield us from the everyday effects of the sun. But when powerful solar explosions occur, the potential effects on our planet and technology range from the beautiful

to the incredibly disruptive – and can have very serious outcomes for the critical systems used in aviation.

To understand how the sun's activities can affect aviation, first we need to understand the role of Earth's ionosphere. The ionosphere extends upwards from 80 km above Earth's surface and consists of charged particles. Satellite-based communication, navigation, and surveillance systems rely on transmissions of signals



through the ionosphere. Solar events that modify the density and structure of the ionosphere can make the signals of one or more satellites impossible to track. This 'loss-of-lock' may result in reduced positioning accuracy or, in worst case, a denial of global navigation satellite system (GNSS) service.

High-frequency (HF) radio communications also utilise the ionosphere, with radio waves bouncing off it to enable long-range communication systems. When solar activity results in the ionosphere losing its ability to reflect those waves, HF communications are disrupted.

It's not only navigation and communications that can be affected by space weather. During a solar radiation storm, highly energetic charged particles can slip past the earth's magnetic field, resulting in amazing shows of aurora or, more seriously, potentially dangerous levels of radiation affecting aircraft occupants and on-board electronics.

During an extreme space weather event, these types of effects could occur simultaneously. The last recorded was the 'Carrington event' of 1859, when brilliant aurora were observed in tropical latitudes. Telegraph systems across Europe and North America failed as currents were induced

along the lines by changes in Earth's magnetic field. The likelihood of a similar event occurring in the next 50 years is estimated to be around 30 percent, with the global economic impact likely to be trillions of dollars.

Recognising the technical and safety risks of space weather, the International Civil Aviation Organization (ICAO) Meteorological Panel set up an advisory system to alert the aviation industry on probable occurrence of space weather events caused by the sun, and expected impacts on the system.

These space weather advisories will be provided from late 2019, issued as necessary, and covering effects on HF or satellite communications, on GNSS-based navigation and surveillance, and on the intensity of radiation levels affecting crew and passengers.

Anticipating and planning for degraded performance of communication and navigation systems adds to the margins of safety. Often degraded performance is unavoidable, but being ready to respond to it with a pre-conceived plan is the safest way to go.

For more information on space weather and the new space weather advisory system for aviation, search for 'space weather' on our website. ➡

'WALL OF WOOD' – KEEP THAT LOOKOUT!

A potentially catastrophic near miss has lessons for all pilots – even if they check NOTAMs.

A log hauler was using an aerial cable slung across a valley 600 ft (180 m) above the ground. The workers stopped for smoko and lowered the cable to the ground.

Almost immediately a military helicopter came into view and swept along the valley in the vicinity of where the cable had been suspended only moments before.

The operation had not been formally notified by NOTAM.

The military pilot had no idea of the logger's activities and no idea how close they came to a potentially catastrophic event.

The CAA has since produced guidance for the forestry industry, including the criticality of having a NOTAM notified, as well as the desirability of letting nearby aerodromes, agricultural operations, and aero clubs know of the planned activity.

It advises operators to also make use of lighting, markers or other visible warning signs on the hazard; and to even consider taking out an advertisement in the local papers.

CAA Aeronautical Services Officer Robert Shanks investigated the incident for the CAA.

He says that while the guidance he's developed for the forestry industry will help logging operators realise their obligations to aviation safety, pilots must remain alert.

"All pilots know they should always check for NOTAMs along their planned route," Robert says.

"But this event highlights the absence of a NOTAM is no guarantee there's no planned activity around their flight path – particularly over mature forest areas.

"They should maintain a high degree of situational awareness," he says. "Flying through or across valleys, they should be constantly on the lookout for hillside scarring, dust, and of course, hauling ropes."

CAA analyst Joe Dewar has worked with the Transport Agency, Worksafe, and Maritime NZ, analysing risks associated with forestry transport.

"What's coming is called the 'wall of wood' by industry groups," Joe says. "All those forests planted during the 'green gold rush' of the early 1990s are now reaching maturity and will be logged over the next decade.

"That will have consequences for aviation, and particularly helicopter operations.

"There'll be more low level hazards, like cable systems, in forests that operators might have been flying over – hazard-free – for years." ➔



// Pilots should keep a keen lookout, even if there are no NOTAMs out for their planned route.

INTRODUCING THE LATEST AUTHORITY MEMBERS



Harry Duynhoven and Jill Hatchwell bring years of legislative, and GA, experience to the CAA's five-person Board.

Harry Duynhoven, former Minister for Transport Safety, would love to be a pilot. "My eyesight is not nearly good enough!" His new role with the CAA Board will have to do.

A current councillor with the New Plymouth District Council and its former mayor, Harry was, in his parliamentary career, almost exclusively involved in transport.

Among other roles, he was opposition spokesperson for transport and aviation, chaired the transport select committee, and even had the rare distinction of getting a transport inquiry up and running – from opposition.

He was minister at the time of 9/11 and retains a huge admiration for Avsec's quick and effective response to the crisis. "It was amazing – up and running in no time."

Harry sees an increasingly onerous international security regime as one of the challenges facing the CAA, as well as changes to how regulation is carried out. "It'll be a different mode of operating for many people. It's becoming more 'holistic' and about the system, rather than having 'i's' dotted and 't's' crossed."

Harry's glad to be back in the world of aviation.

"You've got some of the most dynamic people I've ever met, in the world in aviation. And the industry is also ever-changing. It makes a huge contribution to the economy, and the welfare and wellbeing of our people.

"New Zealand can be very proud of what it has achieved," he says. "The aviation system here has a better safety record, I believe, than the average worldwide one.

"Now we need to concentrate on those areas still not doing that well."



// Harry Duynhoven and Jill Hatchwell

It was kind of inevitable Jill Hatchwell might end up on the CAA Board.

For 24 years she helped build, then run, Vincent Aviation, together with her husband Peter Vincent. Their son, Tom, is a first officer with Air New Zealand. Their daughter, Laura, is working towards her CPL. Between them, Jill and Peter have four nephews, and a great-niece, flying.

"You could say I come from an aviation family," she says with understatement.

At its peak, Vincent Aviation employed 120 staff, flew in both Australia and New Zealand, and operated chartered and scheduled passenger operations. It transported every type of passenger, from prime ministers to royal family members, sports teams to prisoners, defence force personnel on UN operations in Timor L'Este, to the Dalai Lama.

Now Jill is building her governance career.

"I'm here because of my general aviation and financial background," she says.

"Vincent Aviation had a very collaborative and constructive relationship with the CAA during our years of business. It was a good example of how you can do things and make things happen in a positive way. Hopefully my experience will be of value to the Authority." ➤

I learned about flying from that //

STAYING STAUNCH IN THE STORM

This co-pilot's story from way back has as much relevance today as it did then: someone willing to make themselves unpopular with their workmates in the pursuit of safety, and saving their lives in the process.



Back in the day, New Zealand international crew included a flight engineer. Their preflight duties included checking the required amount of fuel and oil was aboard the aircraft for the proposed flight.

The engines' oil tanks were replenished via oil filler caps on top of each cowl, which the flight engineer was responsible for checking were closed.

The American tanker drivers soon became irritated at our flight engineers' insistence on checking the oil caps themselves.

The Americans scoffed at our explanation that New Zealand procedures stipulated the engineer must personally check these items.

"We handle more than 20 airlines here," the Los Angeles tanker driver informed our engineer one night, when the engineer had made him return with a ladder to check the oil filler caps.

"They all trust us to do the job properly," said the tanker driver. "Why can't you?"

The matter became more controversial when our insistence on double checking led to a departure delay, something scheduled airlines try to avoid like the plague.

The situation boiled along and finally came to a head one dark and stormy night when we were about to depart on an eight-hour flight out of LA to Tahiti.

I was co-pilot.

Things had gone wrong from the beginning.

The flight plan weather information was delayed, which meant our navigator didn't come up with the final fuel figure until 15 minutes before departure time. The caterers had short-changed us so we had to order 30 more economy meals. A few other problems piled in until a delay looked inevitable.

But seven minutes before departure time, the last passengers had fastened their seat belts and our quite junior flight engineer, Bob, was checking the refueller's figures in the fuelling logbook. The chief steward came forward to let us know the passengers were all aboard, and he was waiting for the tanker driver to leave the aircraft before closing the last door.

The captain and I had completed the pre-starting checks up to fuel.

"Any likelihood of an on-time departure?" the captain asked Bob.

"I hope so, I've just got to go outside and check the oil caps," he replied. Outside, the driving rain made me glad I wasn't Bob.

"No need, I've already checked 'em," the American refueller assured him. "They're all fine."

"I'd better go out and check..." Bob wavered, knowing his actions would cause a late departure.

I tentatively suggested we take the refueller's word on this occasion. Air traffic control had issued our start clearance and we were all set for a scheduled departure.

"Yeah...OK then," Bob replied. "My checks are done. Ready for the 'before starting checks'?"

"Fuel selectors?" I called.

"Main tanks selected."

"Cross feeds."

"Normal."

"Fuel quantities?"

"Ninety four thousand pounds total, oil quantities ..."
Bob faltered mid-sentence.

"Continue checks," the captain prompted. We still had five minutes to go and our chances of an on-time departure looked good.

Bob makes himself unpopular

"Captain, I'm going outside to check those oil caps."
Bob's announcement suddenly destroyed any chance of an on-time departure.

I looked angrily across at the captain but he seemed unconcerned. It took five minutes to get the boarding steps wheeled back to the front passenger door, and another 10 to find a step ladder to enable Bob to check the oil filler caps.

He returned to the cockpit 20 minutes later, tight-lipped and soaked to the skin. Air traffic control had cancelled our clearance and advised us there would be a further 30-minute delay before we could start.

"You've made us miss our slot time," I accused him.

"UTA are departing ahead of us and we'll arrive in Tahiti late, half an hour behind them."

"Better than not arriving at all," Bob snapped back angrily.

"Whaddya mean by that?" I demanded. First he'd delayed us, now he was using sarcasm??

He slid his seat forward to the take-off position between our pilots' seats.

"If I hadn't gone outside and checked those oil filler caps, we'd have run out of oil in about two hours.

"The refuellers hadn't replaced the oil filler caps," he continued. "They'd left them hanging by their chains – all four of them."

I was chagrined. Suddenly the desire to achieve an on-time departure didn't seem as important as staying alive.


What would have happened if Bob hadn't ignored me? What if he hadn't followed his professional instincts and insisted on going outside into the pouring rain to double-check the filler caps?

Venturi action would have siphoned the vital lubricating oil out of the engine oil tanks during flight, until one, then a second, and finally all four engines would have failed. Our passenger airliner would have mysteriously disappeared into one of the deepest areas of the Pacific Ocean.

What did I learn from Bob?

I was too interested in an on-time departure, and tried to persuade Bob to skip some of his checks. Fortunately he refused to be bullied into abbreviating his check.

I learned this from Bob:

- Be consistent and always follow operating procedures fully.
- Never delegate tasks to unknown, unqualified personnel.
- Never try to persuade other crew members to deviate from standard operating procedures.
- Never allow others to persuade you to shortcut SOPs. 





// Calls should be clear, concise, consistent and correct.

Photo: iStockphoto.com/southerlycourse

PLANE TALKING AND SITUATIONAL AWARENESS

Good radio comms makes your life, and the lives of the pilots around you easier, and *safer*.

CAA Safety Investigator Peter Stevenson-Wright has heard numerous examples of unprofessional radio calls in his 20 years on the job.

“Whereas well-constructed and clearly spoken radio calls are gold to other aircraft,” he says.

“Good comms and accurate position reports are crucial, so other pilots can accurately place your aircraft into their mental ‘traffic’ picture.

“That includes using the geographical points on the VNC, not places only known to locals. Think of the itinerant pilot.”

CAA Flight Examiner Marc Brogan says the sheer volume of calls sometimes made, and their length, can confuse other pilots and make it difficult for *them* to make appropriate transmissions.

“Keep calls short and sharp,” he advises, “and relevant to what you’re doing.

“For instance, you don’t need to make a call at every leg of the circuit. Make the downwind call, and any others only to ensure aircraft requiring your position are kept aware.”

CAA Aeronautical Services Officer Robert Shanks says standard phraseology ensures instructions and

information are passed in a clear and concise manner, every time, so there's no ambiguity in communication.

"An ATC frequency can quickly become jammed up if a pilot is using non-standard, long-winded transmissions.

"Air traffic controllers might have to make extra radio calls to pilots to confirm information, or to ensure the pilot has read back and understood critical components of the ATC clearance.

"And an overloaded frequency reduces the controller's ability to maintain control, or pass essential information quickly to all pilots on that frequency."

Even so, Marc Brogan says, if a pilot isn't sure of the standard phraseology, they should make the call anyway, using plain language.

"Better that, than no communication at all."

CAA helicopter Flight Examiner Andy McKay agrees calls should be clear, concise, and relevant.

"And rotary pilots should follow the same radio protocol as fixed wing pilots – they share the same airspace after all.

"But a helicopter pilot should be further mindful of having particularly good communication equipment – headset, radio, and audio panel.

"That's because helicopters have a greater risk of background noise, particularly wind noise when their doors are removed for utility operations."

"Obviously that makes hearing transmissions difficult. Quality equipment reduces the risk associated with that," Andy says.

Outside the circuit, Marc Brogan calls the constant radio use of some pilots to 'overtell' other aircraft their position, intention and so on, a "false security blanket."

// ...calls can be inaccurate, they can be vague, and they can be misunderstood. //

"They have a sense of, 'well I've told everyone where I am, so I'm safe now.' And then it's heads down in the cockpit.

"But calls can be inaccurate, they can be vague, and they can be misunderstood.

"I've even known pilots to be so reliant on radio, that, if what they 'heard' transmitted differs from what they're looking at, they'll deny what they're seeing – like the position of another aircraft.

"But radio is absolutely not the 'be all and end all'. It's an aid to situational awareness, to communicate what you're doing, and to receive instruction when needed.

"But it should never replace the eyeball." ➤

// UPDATED BOOKLETS

The new release of *Plane talking* incorporates fresh guidance laid out in Advisory Circular AC91-9 & 172-1 *Radiotelephony Manual*.

Milford aerodrome and its surrounds present special challenges to pilots. The new *In, Out and Around Milford* provides a starting point for preflight considerations, including advice about weather and traffic.

To get free copies of either booklet, or any in the GAP range, email info@caa.govt.nz.



PBN IMPLEMENTATION UPDATE

Phil Rakena, Airways' technical operations specialist

Performance-based navigation (PBN) has now been implemented at 17 controlled aerodromes in New Zealand. Gisborne and Napier will have PBN implemented in November 2020.



The New Southern Sky (NSS) National Airspace and Air Navigation Plan envisions a full PBN environment in New Zealand by 2023. There is no mandate for PBN, so Airways will accommodate a 'mixed-mode' of PBN and non-PBN aerodrome procedures for a number of years yet.

Already, more than 90 percent of New Zealand flights are PBN-capable.

More aviation operators are expected to upgrade to PBN together with ADS-B upgrades by 2022. This will contribute to greater safety and efficiency benefits.

What are the benefits?

Safety benefits include consistent and predictable flight procedures that can be pre-programmed into flight management systems, and a standardisation of navigation terms. PBN designs can include traffic de-confliction, and reduce the need for tactical manoeuvring of aircraft.

ICAO data on CFIT (controlled flight into terrain) also indicates that approaches with lateral guidance are 25 times safer than those without, and vertical guidance makes them eight times safer than that.

PBN delivers the safety, environmental, economic and social benefits anticipated in the New Southern Sky plan. This is through improved and safer access to aerodromes in poor weather (low minima); fewer CO₂ emissions (flight time/fuel burn); reduced noise (continuous climb and descent); and greater aerodrome capacity (arrival/departure integration).

It also supports the move from procedural air traffic management to surveillance control in busy environments, enabling management of increasing traffic volumes.

Under the NSS aviation modernisation programme, PBN contributes to forecast wider economic benefits of \$904M by 2035.

Background

In 2008, ICAO issued the Performance-based navigation concept in the PBN Manual (Doc 9613). This provides guidance to move aviation away from sensor-based navigation using ground-based beacons, to a performance-based system placing greater reliance on satellite-based technologies.

The CAA developed a PBN Implementation Plan in 2009 to meet the ICAO guidance. At the heart of the plan was the introduction by Airways of PBN implementations across controlled aerodromes in New Zealand.

Stay up-to-date

You can receive email notifications when there are PBN updates on the CAA website. To subscribe, visit www.caa.govt.nz/subscribe. You can select what lists you would like to subscribe to, including PBN and New Southern Sky. ➔

PBN benefits per annum



76,000
minutes
avoided
flight time



\$2.5M
value of
passenger
time



4.8M kg
reduced
CO₂
emissions



\$3.6M
direct
financial
benefit

// WHO'S INVOLVED?

- **New Southern Sky** maintains oversight of, and addresses issues at the PBN Implementation Working Group meetings with Airways, Aeropath, CAA, and operators.
- **The CAA** – for procedure and airspace approvals, regulatory support and operator approvals for PBN.
- **Aerodrome operators** – for community engagement, and agreement to publish and use procedures.
- **Aircraft operators and airspace users** – for performance, PBN capability, and identification of needs.
- **Airways, including ATC** – for policy and standards, training, and software.
- **Aeropath** (an Airways company) – for procedure design, charting, and AIP updates.
- **The Ministry of Transport** continues to lead the ground-based navigation aids review panel.

I learned about flying from that //

WHEN PURE, CLEAR, WATER ISN'T A GOOD THING

This pilot had always thought water in a fuel sample would be easy to detect. But when it happened to him he was astounded how difficult it was to identify.

The Chipmunk had been picketed at Classic Fighters 2019 on Easter Sunday, with its canopy cover secured, and with virtually full fuel.

But we didn't have any additional means of covering the fuel cap. Those at Omaka over Easter will recall that it rained long and hard, from about midday. Trying to return to Nelson that day was not sensible, so we secured the aircraft in a hangar and returned by road.

The following Wednesday, in 'Air Marshal' weather, I flew across the Richmond Range in a Motueka Aero Club 172 with another club member, to recover our Chippy.

Given that the aircraft had been unattended for a few days, an amped-up preflight seemed like a good idea.

When I took my first fuel sample, using the standard 15 cm long fuel drain tester, I wondered if I might see a little water in the bottom of the sample. What I did see was a few bubbles at the *top*.

I was puzzled for a few moments, but then had the dawning thought that the sample might be all water.

Naaah...

Raising the sample to the now clear blue sky, I still couldn't be sure. I gave it the sniff test and still wasn't absolutely convinced.

So I poured a little onto my hand.

There was no evaporation and consequent cooling, no smell and no oily feel.

That clinched it. My fuel sample was 100 percent water.

I'd read about it, and always thought it would be easy to identify. But it wasn't at all that obvious.

It was too good an experience not to share. I called over the Mot club pilot who'd flown the 172 over with me.

While retired from full time flying, this chap has decades of flying in a wide range of aircraft types. He'd heard of this phenomenon but had never seen it.

We continued draining both tanks until there was no further evidence of water. We ran the engine for an extended period before flight, to verify there was no water affecting the performance of the engine.

The flight back to Mot was uneventful – but my mind was fair *leapfrogging* from one forced landing area to the next. Call me paranoid!

So, what you learn in theory class really can happen in practice.

All water. 

// This story and the photos are about about avgas. Jet A-1 can be more difficult because it has an appearance similar to water, and water mixes more easily with it. Testing with water testing capsules or paste is recommended.

For a free copy of the Good Aviation Practice booklet *Fuel Management*, email info@caa.govt.nz.



Water



Fuel



Mix of water and fuel

OUTSIDE THE LIMITS



The flight envelope defines the safe operating range of an aircraft. We look at how a pilot can stay within the envelope, and the consequences of not doing so.

Beyond the specified G-force and airspeed limits – the flight envelope – damage or deformation of an aircraft *can be expected*.

Overloading the structure of an aircraft through wind shear, turbulence, or extreme manoeuvres can be disastrous.

Structural overloading

In general, aircraft strength is measured by the total load the wings are capable of supporting without permanent damage.

Aircraft are built to allow for ‘ultimate load’ factors generally 50 percent greater than the normal limit loads. Deformation might occur beyond the limit load, but breakage can occur beyond the ultimate load.

Under normal operation, an aircraft should stay within limit load levels, but factors such as extreme control inputs, sudden gusts, or excessive airspeed, can push the airframe closer to the ultimate load, and closer to breakage.

Structural fatigue

Every airframe is subjected to a range of stressors during its operating life, all of which could eventually lead to fatigue and failure. This is where proper maintenance and careful flight habits make all the difference.

Fatigue will develop over time, leading to cracks that grow rapidly until reaching complete failure. Weather, loading, speed, and G-force all contribute to this process.

Flying a plane at high speed in turbulent conditions will not only increase stress, but also increase the number of fatigue cycles in a given time period.

Similarly, a pilot who frequently pulls high G will contribute to fatigue damage at a greater rate than a pilot who is gentle with their aircraft.

Flutter

Flutter occurs when a part of the aircraft vibrates due to aerodynamic, inertial, and elastic forces, giving the same effect as a flag in the wind.

Ailerons are most susceptible to this effect, and gliders are particularly at risk due to their structural elasticity and propensity for high altitude operation.

An aircraft is designed to be ‘flutter-free’ within its flight envelope.

When encountering flutter, a quick reduction in airspeed and raising the nose may damp it out. Without taking action, the flutter could continue amplifying to the point of tearing the control surface or airframe apart. In the wrong circumstances this can happen in seconds.

Weight and balance

Weight and balance have a direct impact on the stress experienced by an aircraft.

Additional weight reduces angle and rate of climb, reduces ceiling and range, and increases landing speed and landing roll. It will also increase structural stress, and must be taken into account when considering the envelope.

Flying within the envelope

To remain within the flight envelope, a pilot must maintain input levels and speed appropriate for the conditions.

A gust while flying too slowly in turbulence can result in a stall condition, while flying too quickly can overstress the airframe.

The greatest safety margin can be found at manoeuvring speed, which is specified by the aircraft manufacturer. Overload damage is still possible at or below this speed, but is extremely unlikely in normal flight conditions.

Even at manoeuvring speed, excessive control inputs can result in damage. Rolling and pulling at the same time can also increase structural loads by one third.

In summary, stay within your flight envelope by keeping within published G and airspeed limits, fly appropriately in turbulence, and be particularly cautious about control inputs when at speed or under high G. ➔

// MARLBOROUGH FROST PROTECTION

This is a heads-up to helicopter pilots that frost protection procedures in Marlborough are no longer being promulgated by Supplement.

Density of traffic has reduced and the need for special procedures no longer exists.

Normal business-as-usual control zone requirements are to be complied with.

Photo courtesy of Ned Dawson/HeliOps Magazine

HOW TO GET AVIATION PUBLICATIONS

AIP New Zealand

AIP New Zealand is available free from www.aip.net.nz. Printed copies of Vols 1 to 4 and all aeronautical charts can be purchased from Aeropath on 0800 500 045, or shop.aeropath.aero.

Pilot and aircraft logbooks

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

Rules, advisory circulars, airworthiness directives

These are available free from the CAA website. 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 aero@caa.govt.nz.

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

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

For more info, visit www.caa.govt.nz "Aviation Info > General Aviation > Aviation Events".

CAA cut-off date	Aeropath cut-off date	Effective date
28 Aug 2019	04 Sep 2019	07 Nov 2019
25 Sep 2019	02 Oct 2019	05 Dec 2019
09 Oct 2019	16 Oct 2019	02 Jan 2020
06 Nov 2019	13 Nov 2019	30 Jan 2020

Visit www.caa.govt.nz/aip to view the AIP cut-off dates for 2019 and 2020.

AVIATION SAFETY ADVISORS

Contact our aviation safety advisors for information and advice. They regularly travel the country to keep in touch with the aviation community.

John Keyzer – Maintenance, North Island
027 213 0507 / john.keyzer@caa.govt.nz

Carlton Campbell – South Island
027 242 9673 / carlton.campbell@caa.govt.nz

Neil Comyns – Maintenance, South Island
027 285 2022 / neil.comyns@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

Gippsland GA200C

Date and time:	10-Jun-2018 at 11:20
Location:	Onewhero
POB:	2
Injuries:	0
Damage:	Minor
Nature of flight:	Agricultural
Pilot licence:	Commercial pilot licence (A)
Age:	55 yrs
Flying hours (total):	22915
Flying hours (on type):	8500
Last 90 days:	265

After touchdown the aircraft lost directional control, resulting in a ground loop. The aircraft sustained rear damage when coming to rest down a slope on the edge of the airstrip.

The maintenance investigation found the tailwheel spring attachment support clamp bolts had failed, allowing the tailwheel and spring assembly to pivot about the forward attachment bolt. This resulted in a loss of directional control on landing.

Following the incident, the operator introduced a 300-hour replacement life on the support clamp securing bolts, to prevent a reoccurrence.

The CAA issued Continuing Airworthiness Notice (CAN) 32-004 Gippsland GA200 series Tail Wheel Spring Attachment based on information provided by the operator. The CAN alerts operators and maintainers of Gippsland GA200 series aircraft of the requirement to carefully inspect the forward and aft mount assemblies of the tail wheel spring for security and condition, as per the maintenance schedule in the GA200 Service Manual B01-00-11.

[CAA Occurrence Ref 18/4436](#)

More accident briefs can be seen on the CAA website, www.caa.govt.nz, "Accidents and Incidents".

Some accidents are investigated by the Transport Accident Investigation Commission, www.taic.org.nz.

Rans S-7 Courier

Date and time:	30-Sep-2018 at 11:30
Location:	Taieri
POB:	2
Nature of flight:	Private other
Pilot licence:	Private pilot licence (A)
Age:	69 yrs
Flying hours (total):	421
Flying hours (on type):	228
Last 90 days:	3

The pilot decided to execute a glide approach for practice. The pilot started the manoeuvre from a poor position and the pilot did not account for having two people on board. As a consequence, they mishandled the aircraft and stalled prematurely, which caused a heavy landing. During the accident the undercarriage was bent and the wooden propeller was destroyed.

The pilot did not call the 24/7 accident phone number (0508 ACCIDENT) to report the accident. The pilot therefore failed to comply with the accident reporting obligations under Part 12 *Accidents, Incidents and Statistics*. This is an important reminder that Part 12 applies to all pilots of all aircraft.

[CAA Occurrence Ref 18/7211](#)

Cessna T206H

Date and time:	07-Apr-2018 at 15:59
Location:	Taieri
POB:	4
Injuries:	0
Damage:	Substantial
Nature of flight:	Private other
Pilot licence:	Private pilot licence (A)
Age:	72 yrs
Flying hours (total):	745
Flying hours (on type):	12
Last 90 days:	12

During the post take-off climb the aircraft slowed, the stall warning came on, and the aircraft began to yaw, which could not be controlled with full rudder. The aircraft departed controlled flight before striking the ground.

It's likely that the aircraft suffered a wing-drop stall around the time that it contacted the ground. There were no injuries. The pilot was recently rated on the aircraft and indicated that he had insufficient experience in dealing with the substantial engine/propeller torque generated.

[CAA Occurrence Ref 18/2148](#)

GA DEFECTS

KEY TO ABBREVIATIONS:

AD = Airworthiness Directive **NDT** = non-destructive testing
TIS = time in service **TSI** = time since installation

P/N = part number **SB** = Service Bulletin
TSO = time since overhaul **TTIS** = total time in service

Guimbal Cabri G2

Fuel gauge circuit board

Part manufacturer:	Helicopters Guimbal
Part number:	G71-41-203
TTIS hours:	1438.7

The helicopter was undergoing a test flight following a routine 100-hour check. The test flight was conducted by a company B-cat instructor. When operating in the aerodrome circuit, the low-fuel light annunciated. The pilot landed immediately and seeing that fuel remained in the tank, air-taxied across the aerodrome to the maintenance base. The fuel was drained and found only 13 litres were on board though the fuel gauges showed 32 litres.

The maintenance investigation determined the fuel system could not be calibrated correctly. The fuel manifold assembly was replaced and recalibrated. There had been no previous reports of problems.

The operator and the CAA wish to remind all pilots to rely on the first indication of a low-fuel state (low-fuel light, fuel gauges, or pilot fuel calculations), and land immediately.

[CAA Occurrence Ref 19/2584](#)

Robin R2120 U

Spark plug

Part model:	REM37BY
Part manufacturer:	Champion Aerospace
ATA chapter:	7420
TTIS hours:	100

When removed from the packaging, approximately three boxes of new spark plugs were found to contain plugs with damaged electrodes. The damage was due to either a manufacturing issue or mishandling.

Champion Aerospace was contacted by the CAA and responded that they have 100-percent quality assurance on new spark plugs. Based on the manufacturer's response, damage to the plugs occurred somewhere between leaving the factory and the maintenance provider retrieving the new spark plugs from stores.

[CAA Occurrence Ref 18/6031](#)

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 website, www.caa.govt.nz, "Accidents and Incidents".

Hughes 369HS

Main rotor blade

Part model:	369HS
Part manufacturer:	MD Helicopters
Part number:	369A1004-51
TSI hours:	100

During a routine 100-hour inspection, IAW CSP-HMI-2 Section 7-16, two blade pin expandable bushings were found to be damaged, consisting of chipping at the upper edge with the possibility of a crack.

The cause of the damage could not be established, but it was suspected that the pins may have been dropped at some point. The defective pins highlighted the necessity of conducting a detailed inspection every 100 hours.

New blade pins P/N 369A1004-51 were installed.

[CAA Occurrence Ref 18/9284](#)

Tecnam P92 Eaglet U/L

No. 2 Inlet valve

Part model:	912
Part manufacturer:	Rotax
ATA chapter:	8530
TSI hours:	600
TSO hours:	600
TTIS hours:	600

During flight the engine started running rough, with the oil pressure noted to be reducing. The pilot immediately began to return to the airfield. When approaching final, and when it was safe to do so, the engine was secured. A safe landing was carried out.

The maintenance investigation found that the inlet valve on the No. 2 cylinder had failed and had been sucked into the cylinder, punching a hole in the piston. As a result of this, oil had been pumped out of the exhaust. The cause of the valve failure was not determined. The operator elected to purchase a new engine.

[CAA Occurrence Ref 19/131](#)

AVIATION SAFETY OFFICER COURSE

The number one function of any company is business success
– safety is critical to business success.

If your organisation operates commuter services, scenic operations, agricultural operations, flight training, sport aviation, or engineering, you should have an aviation safety officer.

Attend this free two-day course to understand the role of a safety officer, or for those who are already in a safety role, to refresh your skills.

You will receive comprehensive guidance material and access to all the latest CAA safety resources and support.

Hamilton 26–27 September 2019

Novotel Hamilton Tainui

Christchurch 31 October–01 November 2019

Sudima Christchurch Airport



AIRWORTHINESS AND MAINTENANCE WORKSHOP

Many owners and operators want to increase their understanding of the requirements for maintaining their aircraft.

The Airworthiness and Maintenance Workshop is designed for a wide range of aviation participants, from airline maintenance planners to private aircraft owners.

The two-day workshop takes a practical approach. There is a limit of 18 participants for each workshop to allow for interaction.

Hamilton 24–25 September 2019

Novotel Hamilton Tainui

Check the CAA website www.caa.govt.nz, "Quick Links > Seminars and Courses" for more information and to enrol online. Places are limited and they fill up quickly, so enrol early.

Accommodation and travel costs are your responsibility, but morning tea, lunch and afternoon tea are provided.