Pointing to safer aviation

Spring 2022

vector

CAA INVESTIGATIONS
BUSTING THE MYTHS

VFR into IMC Part Two

Final call for ADS-B

Are you a 'crowing rooster'?

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

// VFR INTO IMC – PART TWO

// FINAL CALL FOR ADS-B

// ARE YOU A 'CROWING ROOSTER'?

Cover: Investigation and Response (Safety) Investigator Siobhan Mandich at the site of a 2017 accident. The safety team investigates the causes (including possible systemic causes) of accidents to find the lessons in them that can be communicated to the rest of the aviation community. Photo: CAA/Matt Harris.

See our cover story on page 12.

In this issue...

// CAA INVESTIGATIONS – BUSTING THE MYTHS

vector

CIVIL AVIATION AUTHORITY OF NZ

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Published quarterly at the beginning of each season.

Design Gusto.

PUBLICATION CONTENT Unless expressly stated as CAA policy, the views expressed in *Vector* do not necessarily reflect the policy of the Civil Aviation Authority. Articles are intended for safety education and to stimulate discussion, and nothing in *Vector* is to be taken as overriding any New Zealand civil aviation legislation, or any statements issued by the Director of Civil Aviation, or the Civil Aviation Authority of New Zealand.

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Te Kāwanatanga o Aotearoa
New Zealand Government

ISSN 1173-9614

Photo courtesy of Darren Markin/darrenmarkin.co.nz

IT'S NOT JUST BREACHING LOW-FLYING RULES

There were 16 complaints to CAA during November and December 2021 about low flying over the breeding habitats of the critically endangered fairy tern.

Probably New Zealand's most endangered indigenous breeding bird, the tara iti (New Zealand fairy tern) is being threatened by regular low flying over its habitats, and in breach of low-flying rules.

There are fewer than 40 of this species of fairy tern left in the world. That includes 12 breeding pairs.

This is, believe it or not, an increase on 1983, when the entire known population of tara iti – at Mangawhai, and at Papakanui Spit in Kaipara Harbour – was made up of three breeding pairs.

At that point, the Department of Conservation stepped in. Among measures to try to prevent the bird's extinction, it successfully lobbied for restricted airspace above their breeding grounds.

Low flying disturbs the tara iti, including forcing the birds out of nests, leaving eggs vulnerable to predators.

Restricted airspace is at Waipu (NZR 105), Mangawhai (NZR 106) and Te Arai (NZR 107). This is all indicated on the relevant visual navigation charts.

DOC asks that pilots consider not flying at all over these areas, but if you must, fly no lower than 1000 ft AMSL.

If you do, you won't be just breaking civil aviation rules, you could also potentially breach the Wildlife Act 1953.

Consider brushing up your knowledge of other DOC land, because some restricted airspace can extend to 3500 ft AMSL. Check these areas in *AIP New Zealand* ENR 5.1 – 1 *Restricted Areas*.

Any questions regarding the tara iti, email **whangarei@doc.govt.nz**

VFR INTO IMC

Part Two

Why is it that VFR pilots – including experienced ones – continue to enter instrument meteorological conditions?

No worries, mate – done it before

Human factors research indicates that if a VFR pilot has had a previous brush with IMC and lived to tell the tale, they're more likely to feel confident about it happening again[1] – perhaps even deliberately risking it to save time, finish the journey or meet clients' expectations.

The pilots in two recent VFR into IMC accidents in New Zealand had both had an encounter with IMC not long before their fatal flights.

And, according to the magazine *Vanity Fair*[2], the pilot who died with the American basketball star, Kobe Bryant, had earlier claimed to a fellow pilot that he sometimes deliberately climbed through overcast to get into clear air above.

So what should have been a 'last card' emergency procedure had seemingly, for him, become a more regular manoeuvre.

It's spatial disorientation that kills

Since he kept doing it, it's clear that on those occasions, the pilot, Ara Zobayan, didn't suffer spatial disorientation. Perhaps he was only on the fringes of IMC and maintained a reference point.

"One of the key elements contributing to VFR pilots not appreciating the risk associated with inadvertent IMC," says Massey Lynch – who trains VFR pilots to avoid IIMC – "is that they're not aware of how significant the likelihood is of this form of incapacitation following the complete loss of visual reference."

It's spatial disorientation that kills. With a last reference point disappearing in the swirling white outside the aircraft, the lack of visual information can lead to powerful and disorienting sensory illusions, leading to a loss of control. One of the more common is a sense of ascending, when in fact, the aircraft is descending.

This is what the American National Transportation Safety Board (NTSB) found had happened in Zobayan's last flight[3].

The investigators found that the pilot, climbing through cloud to get to clear air above, had almost made it when spatial disorientation is believed to have hit, convincing him he was continuing to ascend when in fact he'd begun to descend. The white surrounding his Sikorsky S-76B would have been so thick he'd have lost all cues as to how close to terrain he was, or even which way was 'up'.

Massey, who's the operations manager for the Hamilton-based Westpac Air Ambulance, says it's likely that the two New Zealand VFR pilots who died in IMC conditions, but who'd had a previous brush with them, are also likely not to have experienced full spatial disorientation in their earlier encounter.

"A review of NTSB accident reports indicates there are varying degrees of spatial disorientation," he says, "and VFR pilots who've never experienced it, or experienced its full effects, do not appreciate how severely incapacitating it can be.

"They likely don't understand the physiological factors in loss of reference – the effects on the body and mind, and how quickly this can lead to a loss of control.

"With this understanding, pilots are better able to assess the risk IIMC represents and put more effective mitigation and avoidance measures in place.

"If possible, instrument training for VFR pilots should include exposure to spatial disorientation in a controlled situation. This will allow pilots to recognise it, and learn to manage the conflicting vestibular sensations, while maintaining a safe flight path by reference to instruments."

A lack of planning

CAA safety investigation reports indicate that one of the surest ways of a VFR pilot dying in an IIMC encounter is a lack of robust planning.

Time and again, the reports find the pilot concerned didn't check the weather, gave it only a cursory check, or did check the weather and flew anyway.

One recent tragedy in New Zealand illustrates how casually even an experienced pilot can treat this essential part of flight planning.

A CAA safety investigation found the 2300-hour pilot couldn't get into their destination aerodrome because of fog, couldn't get into a nearby aerodrome for the same reason, so turned for home. Having turned on the GPS and autopilot, the aircraft flew into terrain after entering cloud only a few minutes from the pilot's home aerodrome.

There was no evidence of the pilot checking predicted weather, nor undertaking a threat and error management process. »

1 Mark W. Wiggins, David R. Hunter, David O'Hare, Monica Martinussen. (2012). Characteristics of pilots who report deliberate versus inadvertent visual flight into Instrument Meteorological Conditions. *Safety Science 50*(1), 472–477.
2 "Kobe Bryant's tragic flight" *Vanity Fair*, 25 January 2021.
3 NTSB Report AAR2101.

» "Good weather conditions at his destination (home aerodrome), and familiarity with the route being flown, may have encouraged the pilot to continue his flight with a reliance on the aircraft's sophisticated technology," the report concludes.

"[But] this accident also serves as a timely reminder of the risks associated with reliance on technology for flight into deteriorating weather conditions."

Weather 'cues'

Getting MET information is only part of weather planning, according to the online aviation library, SKYbrary.

It urges pilots to consider alternative courses of action should the weather deteriorate, and to decide *when* those courses of action should be taken[4].

"For example, what would be the minimum visibility or cloud base needed to continue on track?

"Once airborne, these decisions are likely to be made under stress, so pilots must also be aware of their own abilities and limitations, which may well be more limiting than the local regulations may require or the law demand."

Massey Lynch says this 'cue-based' decision-making is key to pilots choosing life-saving options on days where the weather is marginal.

"They should be undertaking a formal threat and error management process vis-a-vis the conditions on the day.

"For instance, is IIMC or loss of visual reference, a possibility in today's conditions? If the answer is yes, then what mitigations are appropriate to put in place?

'What is my 'area safe altitude'?, Is the freezing level a factor? Where is there better weather to divert to, to complete an instrument let-down to regain VMC?'

"Considering these options achieves two things. First, the pilot has a basic plan that can be executed in the unlikely event visual reference is lost, and hopefully they will commit to flight by reference to instruments before disorientation or an unusual attitude occurs.

"And second, having considered this option, and the associated risks, the pilot takes a more conservative decision-making approach, identifying alternative options to ensure loss of visual reference is avoided."

SKYbrary says the first cue to deteriorating weather can often be "the need to gradually reduce cruising level to maintain VMC. This provides the first 'cue' alerting the pilot that a diversion is needed".

But aviation accident investigations indicate that pilots frequently receive cues of deteriorating or hazardous weather conditions during the flight, yet continue.

"This may be due to the fact that weather conditions generally deteriorate gradually from minimum VFR conditions to IMC," says Alaska White, CAA Chief Advisor, Human Factors. "This makes it difficult for pilots to accurately discriminate when conditions become unsafe, and a decision to discontinue is needed."

That's why CAA Aviation Safety Advisor – and former agricultural pilot – Mark Houston says the best time to make a decision to avoid IMC is on the ground, well before take-off – not as the weather deteriorates once in the air.

"Avoiding IMC," says Mark, who's had his own encounter with IIMC, "should be the start and finish of any decision about whether to fly."

4 SKYbrary – *Inadvertent VFR Flight Into IMC.*

// Cap Cloud, Christchurch, May 2021.

Photo courtesy of Bob Jelley.

But if you do get ensnared in IMC

For CAA Flight Examiner (helicopter) Andy McKay, the IIMC occurrence described at the beginning of "VFR into IMC – Part One", (*Vector* Winter 2022) is a classic illustration of much pilot behaviour, and results from a lack of currency and a lack of threat and error management.

"Training in handling startle and emergency situations is key," he says.

"Pilots need to practise their response to any possible emergency situation, to the point where it's ingrained in their brain. Then when they're startled by suddenly finding themselves in IMC, they'll immediately go to the procedure they recall so well – maybe only three or four steps – that they know will offer the best odds of getting them out of difficulty.

"If they get overwhelmed by the magnitude of the situation they're suddenly in, pilots can do irrational things. But if they've practised what to do, so that it's automatic, they have a fighting chance of getting out alive – unlike the pilot unskilled in handling startle, who's going to make it up as they go along."

Massey Lynch agrees with Andy that VFR pilots need to anticipate the possibility of loss of visual reference and create a plan of action should it happen.

"IIMC has also been fatal for a number of IFR-trained pilots. The common factor seems to be an event with a significant startle factor combined with the lack of any planning. This results in an attempt to transition to instruments too late, and after spatial disorientation starts to take effect."

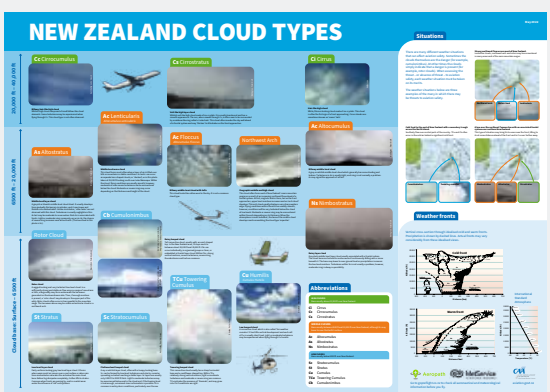
Comments or queries? Email **education@caa.govt.nz**

// MORE INFORMATION

PreFlight is a new way to get your weather and aeronautical information in one place.

Register at **gopreflight.co.nz** or go to **about.metservice.com/preflight** to learn more.

For your free updated *New Zealand cloud types* poster, go to **aviation.govt.nz/education** > **order publications**.



Watch the CASA video "178 seconds to live" on YouTube.

UPDATE THOSE ELT DETAILS

The 'golden hour' is real. It may not be strictly an hour – it might be two hours or just 30 minutes – but it refers to the critical and limited time after an accident when treatment from paramedics and hospital clinicians has the greatest chance of saving your life.

So, if outdated contact details attached to your emergency locator transmitter delay help getting to you, you reduce your chances of survival.

A full half of ELT activations with the Rescue Coordination Centre are for aircraft with out-of-date contact details.

The RCCNZ says that when the ELT is unregistered, or registered to a previous owner, there can be a "considerable delay" in sending help.

So do yourself a possibly life-saving favour and **update your details at beacons.org.nz.**

I LEARNED ABOUT FLYING FROM THAT

This pilot's a planner. But even he forgot one seemingly small, but important, thing.

Photo courtesy of Hokitika Airport.

I was taking my daughter over to the West Coast settlement of Ōkārito for a few hours' lagoon-paddling.

Flight planning started a month before. Across from Canterbury, direct on track up the Rakaia River and over the main divide, then home via Hokitika, where I planned to refuel.

I'm very comfortable flying in the mountains – I've done thousands of gliding hours there.

I'd flown over the strip at Ōkārito a couple of times, and just 12 months ago, walked over it, and talked to very welcoming locals who'd said, "fly in any time".

I fly a PA-18-150 Super Cub using a high-quality navigation app on my phone, which I also use to give ground speed and navigation. I have the latest New Zealand visual navigation chart book from AOPA – which I mainly use for a topographical overview, and to check different areas of airspace. And I use the *AIPNZ*, Vol 4. Flight following is a satellite tracking system.

We carry enough food and warm clothing for a forced landing, and a night out in the Southern Alps.

I'd been to Hokitika several years before during cross-country training for my PPL. I'd done a few circuits there, when the radio frequency was 119.1 MHz, unattended airfield.

The day of the flight was clear and calm and the flight to Ōkārito was stunning. We had a couple of stops up the head of the Rakaia for a few pics.

Passing through all the glaciers and out onto the west coast, we were soon on the ground at our destination.

After a four-hour paddle and some lunch, we were ready to head up the coast to Hokitika. I checked again my VNC to see where we would be clear of the restricted area over the wetlands of the Ōkārito and Saltwater Lagoons. I knew the radio frequency of Hokitika as I'd been there before, and my AIP confirmed that.

After a short flight up the coast, I made the comment to my daughter that it was very quiet around Hokitika – I knew there were a few microlights that fly out of there. But it was a weekday and maybe that's why it was so quiet on the radio.

Also, my AIP chart told me to expect NORDO traffic on runway 12/30.

Approaching Hokitika we made a call and joined for 30 left-hand. I then made another call mid-downwind.

Meanwhile, down on the ground

Jesper Reinink is part of Hokitika Airport's runway inspection team, who check the runways before each scheduled passenger flight.

On a clear March day in 2022, Jesper had just finished reviewing the condition of Hokitika's 03 and 21 runways, removing any debris, making sure the runway surrounds were also clear, and checking the lights and the windsock.

He knew an RNZAF King Air was due in, so he parked against the aerodrome's western boundary to watch it land.

As the King Air appeared on long final from the south, Jesper also became aware of a recreational aircraft, approaching from the east, and doing a left-hand turn on to base.

He could see what could happen if that recreational aircraft was going to do a touch-and-go.

"We get quite a bit of trainee traffic here, and if it was going to do a touch-and-go, it and the King Air were going to cross over each other very closely in the same airspace."

He radioed the recreational aircraft asking its intentions. But there was no response.

The King Air pilot, however, heard the transmission and immediately undertook a go-around, climbing and heading north.

And back in the air

On final, about a kilometre from the threshold, we saw a King Air climbing out on 03.

"Where did that come from?" I remember thinking. "It wasn't on the ground when we flew past, and I never heard them call!"

We landed, taxied over to the fuel pumps, and shut down. »

The aerodrome's runway inspector came over saying, "We've been trying to call you". "But I had my radio on," I told him.

"What frequency were you calling me on?" I asked him. Even as I asked, I started to have the sick feeling that I might have stuffed up.

"One, one, nine, eight," he replied.

I got out my AIP and took another look. It read 119.1.

The runway inspector said the frequency had changed (2017). I looked at the date at the bottom of the page in the AIP and it said 'Feb 16'.

I hadn't updated it. I then had a look at my VNC and there it was in blue, '119.8'.

The sick feeling was right – I *had* stuffed up.

I apologised to the runway inspector and made a phone call to the air force to let them know it was me who'd caused their missed approach, and I passed on my apologies.

I spoke to a local instructor about what I'd done and asked his opinion. We spoke about the airfield rule changes, and I asked his opinion about weather conditions for our intended flight track home, since he'd just come from that direction. Local knowledge.

We refuelled, departed – on the correct frequency – and headed for home. I was pretty disappointed with myself that I'd made such a mistake.

What have I learned and can pass on?

Don't assume things will be the same as last time. I've updated my AIP and will continue to do so.

I've installed ADS-B.

I've changed to bifocal sunglasses, so no need to take glasses off and on.

I'm running a first-class electronic flight bag on a small tablet.

I could have talked to more experienced, local pilots because they might have told me of the frequency change at Hokitika.

Remember, due to weather, you may end up somewhere that's not your original destination. But do you have the latest chart for your new landing place?

I write the different radio frequencies for my intended track on a piece of paper for quick reference. But they're only any good if they're the *updated* ones.

Finally, I'm more vigilant during flight planning. It's very easy to become complacent about planning when you've been to a destination before.

Vector thanks this pilot for sharing his story, so that others can get a 'free lesson' on keeping their *AIPNZ* up-to-date.

Comments or queries? Email **education@caa.govt.nz**

Photo courtesy of Hokitika Airport.

CARRIAGE OF LPG CYLINDERS

You cannot carry LPG containers on a passenger, or passenger-and-cargo, flight.

Liquified petroleum gas is a 'dangerous good' under both ICAO's *Technical Instructions for the Safe Transport of Dangerous Goods by Air* and *IATA Dangerous Goods Regulations*.

But there's a common misconception that LPG cylinders can be carried on an aircraft – normally helicopters – that's also carrying passengers, using rule 92.11(c) *Carriage of Dangerous Goods – Exceptions*, or rule 133.65 *Helicopter External Load Operations – Dangerous Goods*.

Both rules, however, have further conditions that make such an assumption incorrect.

Rule 92.11(c) says, "*A person may offer or accept dangerous goods for carriage by air that are for the recreational use of a passenger without complying with this Part if....* Then paragraph (2) carries on "*...the dangerous goods are not listed in the Dangerous Goods List in the Technical Instructions as being forbidden for carriage by air in an aircraft that carries passengers...*".

iStock.com/Joe_Potato

// LPG cylinders cannot be transported with passengers.

And rule 135.65(b) says, "*A pilot-in-command of a helicopter may accept Class 2 to Class 9 dangerous goods for carriage as an underslung load beneath a helicopter without complying with Part 92 if...* Then paragraph (1) carries on "*... the carriage of the dangerous goods are not forbidden by the Technical Instructions...*".

And to be clear, LPG is forbidden under both.

The only way that LPG cylinders can be carried on a passenger aircraft is by applying Special Provision A1 of ICAO's Technical Instructions which allows the CAA to issue a prior approval, and establish written conditions for that approval.

One of the limitations of such an approval is that the CAA may approve the carriage of a cylinder of only up to five kg – not a nine kg cylinder, as commonly believed.

An empty LPG cylinder is treated as a full cylinder for the purposes of dangerous goods transport, unless it can be proven that you have adequately 'nullified the hazard'.

That means you have scrupulously washed the cylinder, then thoroughly flushed it with a neutralising agent.

LPG cylinders may be carried on cargo-only flights, but the maximum net quantity per cylinder must not exceed 150 kg, although there's no limit to the number of cylinders that can be carried.

The cylinders must be certified for carriage by air, and marked with the appropriate manufacturing marks, operational marks, and certification marks, as required by the ICAO Technical Instructions.

These include the UN symbol and the technical standard (ISO number) used for design, construction, and testing.

Cylinders must be re-tested every 10 years.

For more information go to **aviation.govt.nz > safety > safety advice > transporting dangerous goods > carriage of dangerous goods – LPG bottles.**

Comments or queries?
Email jim.finlayson@caa.govt.nz

CAA INVESTIGATIONS *BUSTING THE MYTHS*

Contrary to some opinions, investigators do *not* monitor Flightradar24, searching for possible rule breaches. Here, *Vector* debunks this and other investigation fallacies.

Submitters to the CAA of aviation-related concerns (ARCs) will often use Flightradar24 to try to substantiate their claim that a particular aircraft was at a fixed height in a specific place at a certain time.

CAA Occurrence Investigator[1], Velma Scholz, says submitters of such reports are not necessarily experienced aviators and her team is careful in how they interpret such 'evidence'.

"FR24 can be a tool to corroborate the location of an aircraft at a certain time, but we don't use FR24 data as conclusive evidence that a breach did occur," she says.

"Firstly, and for various reasons, it might reflect incorrect information or contain errors. Submitters sometimes also trust calibrated altitude as the actual height, but this hasn't been corrected for pressure variations. Doing so can significantly change the height."

Velma says that if a report of a rule breach looks like it requires further investigation, an investigator will normally approach Airways for the data they hold.

As for those separate claims that the team monitors FR24, searching for aviation rules being broken, Velma says, "Even if we wanted to – which we don't – we have no time!"

ADS-B and investigations

There's also a myth that the uptake of ADS-B has increased the number of prosecutions for rule breaches.

"This is because ADS-B data provides a more accurate account of an aircraft's flight profile," Velma says. "If we find the ADS-B data does support the claim that a participant has breached safety standards – say, by low flying – then we discuss this with them. It's a safety risk, and it's obviously our responsibility to talk that through.

"But to say the uptake of ADS-B has led to more prosecutions is a total fiction.

"For instance, between 1 July 2019 and 30 June 2020, seven low flying events (LFEs) were prosecuted.

"In the July 2020 – June 2021 year, one was prosecuted (out of 10 referred for further investigation).

"In the July 2021 – June 2022 year, none was prosecuted (out of 17 referred for further investigation).

"This indicates the arrival of ADS-B has not significantly changed the way investigations are carried out, nor has it negatively affected the result of those investigations.

"What *has* happened, happily, is that ADS-B data is increasingly able to prove that an alleged breach of the rules has *not* occurred." »

1 There are three teams in the Investigation and Response Unit – the regulatory team who investigate alleged rule breaches that are more to the serious end of the spectrum. The safety team work to elicit lessons from accidents. The occurrences team review aviation-related concerns to determine whether claims of rule breaches are valid or not.

// Investigation and Response (Safety) Investigator Peter Stevenson-Wright, securing his gear after an accident site examination, and waiting for his turn to be evacuated from the mountain, near Makarora, in Otago.

Photo: CAA/Al Moselen.

Part 12 reporting

"Investigations are important because they contribute to identifying possible safety risks, unsafe practices, emerging issues, and trends," says the team leader for safety investigations, Dan Foley.

The safety team look for lessons in aviation accidents, and ask, "Why did this pilot do what they did? How much is the 'system' responsible for what happened?"

Dan says it's important for investigators to raise awareness and understanding in the aviation community of a safety-related issue.

"But to do this well, we depend on reporting by participants (Part 12, ARCs) as well as the public (ARCs).

"Part 12 reports can be made in confidence. If an in-confidence report is requested[2], we have to remove anything that could identify the submitter.

"We do get people reporting their own mistake but wanting to remain anonymous, and we honour that, because it's all about improving safety."

In collecting and using the information provided under Part 12, investigators have to follow really strict guidelines.

"The rules are clear," says Dan. "We're not allowed to use any information submitted under Part 12 to potentially prosecute that submitter. And we're not allowed to give that information to anyone else who may potentially prosecute that submitter[3].

"There are just three exceptions to this. The first exception is if the information shows the flying put someone else (like a passenger) or property, in unnecessary danger.

"So a pilot cannot do something that any reasonable person would consider hopelessly reckless, like drunk flying with a couple of passengers on board, then rush off to submit a Part 12 report, with the thought, 'I reported it under Part 12 so I won't be prosecuted'.

"The second exception is if a pilot reports under Part 12, but the information they give is untrue.

"And the final exception is if a court orders us to release the information."

It's only in exceptionally rare circumstances that a Part 12 report is used in these ways, however.

"Obviously, we want people to report occurrences – because we need to identify where the risk is concentrated – so the way we collect and use that information has to be robust and fair, and it has to be seen as robust and fair.

"We help the participant to identify the root cause(s) of the occurrence. Often those causes are hidden – like a pilot who might have made a poor and risky decision, but the root cause is not the decision itself, or a disregard for the rules, it's fatigue, because they've been working seven days a week for the last month.

"We find most participants are happy to be part of the joint exploration of what went wrong, and to help discover the possibly hidden reason for it, like the unrecognised fatigue."

Investigations, prosecutions, and stats

Another fallacy is that there's a high rate of prosecutions resulting from reports to the CAA.

But the figures speak for themselves. Of the approximately 9000 occurrences reported to the CAA each year, prosecution occurs in less than one percent.

For instance, in the 1 July 2021 to 30 June 2022 year, there were no prosecutions. For anything, not just low-flying events.

Prosecution, contrary to some opinion, is not the CAA's go-to option.

It's used only when it's the most appropriate action to take to improve flying behaviour, and only after a thorough investigation, and according to a strict series of steps.

John Keogh, the team leader for regulatory investigations, says there were 17 LFEs referred to his team in 2021–2022.

"Two resulted in infringement fines, one pilot got a warning letter, and one was educated about what they should have done. There were no prosecutions."

"The majority of ARC investigations end in one of three findings," says Chris Gooch, the team leader for occurrence investigations.

"'No further action' means the investigation is not completed – for instance, if the submitter withdraws their concern and the investigator's initial assessment has identified a low risk to safety.

"'No offence disclosed or committed' means it was not possible to determine whether there had been a breach, or no breach had been made.

"Finally, an 'educational outcome' is guidance material or advice being given to the participant. Sometimes the CAA mediates between various parties – for instance, the ARC

2 CAR 12.61.
3 However, if there's a report submitted by an independent person about the same occurrence, the information from that independent person could potentially be used to prosecute someone.

submitter and the subject of their report – to increase their safety awareness. Or we make suggestions to avoid the issue from happening again," Chris says.

What investigators do most of the time

"We investigate quite a variety of matters," says John Keogh. "From unruly passengers to quite serious breaches of the Health and Safety at Work Act 2015.

"We gather all the available information possible, including any voluntary statements made by the participant and anyone else involved, to assess all the facts available to help determine if there's pilot/operator fault at play.

"After that, we take the most appropriate and proportionate response to the event.

"More often than not, when the participant contributes to an investigation – by, for instance, making a voluntary statement – the investigator can assess how much they accept they were at fault, and therefore the likelihood of them sticking to the rules in the future."

The newly revised Good Aviation Practice booklet, *How to report occurrences*, says, "There is a common misconception that reporting occurrences means you're more likely to be prosecuted. That is not true. While it may be a little uncomfortable telling the CAA what happened, or that you made a mistake, being honest and open with the CAA shows you are willing to learn from your mistake and demonstrates the very purpose of investigations – understanding why something went wrong to try and stop it happening again. Engagement like this supports the CAA in its role in considering the appropriate response to possible breaches of aviation – including alternatives to enforcement – and in choosing which best applies in the circumstances."

John Keogh says his team regularly get feedback from participants.

"They say they really felt listened to by the investigators. As a result, they were willing to accept their mistake and learn from it.

"It's a fact that the vast majority of our investigations end in educational outcomes like this, and that can only be good for everyone's safety."

Queries or comments?
Email **investigations@caa.govt.nz**

// ...to say the uptake of ADS-B has led to more prosecutions is a total fiction. //

Photo: CAA/Kevin Hawkins.

FINAL CALL FOR ADS-B

// By CAA ADS-B Grant Scheme Technical Advisor, Tom Gormley

From **31 December 2022** it's mandatory to have ADS-B installed if you want to fly in controlled airspace.

iStock.com/Fabian Gysel

It's New Year's Day 2023, the weather is perfect, and you set off for a flight to kick off the new year.

You fire up the machine and prepare to taxi. A radio call to the tower for clearance is met with a query about ADS-B. As your conversation continues it becomes clear – without Automatic Dependent Surveillance-Broadcast, you're stuck on the ground.

That could be the reality for anyone operating out of an aerodrome in controlled airspace.

But what about your regular weekly trip into controlled airspace, or a visit to your maintenance facility within controlled airspace?

Sorry, no clearance for you.

With just four months until transmission of ADS-B data becomes mandatory in controlled airspace, it's now more important than ever to make sure you and your aircraft are ready.

Not every aircraft flies in controlled airspace of course, but there are added safety benefits in having an ADS-B kit, even when flying in Class G uncontrolled airspace.

With ADS-B IN, you receive data about aircraft around you, adding to your situational awareness. ADS-B OUT – your aircraft data can be 'seen' by aircraft around you – offers more accurate position data (think of the search and rescue benefits) and the potential for reduced position reporting to ATC.

ADS-B is more accurate, and coverage is up to 45 percent greater than radar. Air traffic control will be using ADS-B OUT data to separate aircraft in controlled airspace.

Still need convincing?

The ADS-B grant scheme is still available! That's up to $2500+GST for ADS-B OUT, and up to an additional $500+GST for ADS-B IN. The scheme is currently due to end on 30 June 2023 – but the scheme is first come, first served.

Criteria for the scheme can be found at **aviation.govt.nz > airspace and aerodromes > new southern sky > ads-b**.

Take a look, even if you don't think you'll be eligible – the criteria are wider than you might think.

And, once again, do not expect to be able to fly in controlled airspace after 31 December 2022 if your aircraft is not ADS-B equipped.

Other stuff you might want to know

We recommend you speak to your avionics workshop to discuss what equipment would be best for your aircraft. You'll need to equip with an ADS-B system meeting the standards and requirements listed in CAA Notice of Requirement NTC91.258.

Take your time getting to know your equipment – it may operate differently to your previous transponder and you need to transmit in the correct mode, including on the ground. The Airways receiver network can detect ADS-B down to ground level in some places. At larger airports, with surface systems, to be able to see aircraft and other vehicles on airport movement areas, it's essential the aircraft is transmitting the correct altitude/ground data. Make sure your transponder is in the correct mode before the aircraft moves.

With continued non-compliant ADS-B transmission you run the risk of not being granted access to controlled airspace. It's also possible the CAA will need to be in touch with you regarding this.

Handheld/electronic 'conspicuity' devices (**EC**) cannot be used in controlled airspace. They don't meet the performance requirements of NTC91.258. Due to this, and the risk of ATC officers being distracted by non-compliant data, Airways removes the data from known EC devices so it's not displayed to controllers.

Most of these EC devices also only transmit ADS-B data and don't have a Mode A/C/S component, so they won't trigger a traffic advisory/resolution in TCAS-equipped aircraft. For this reason, a Mode A/C or S transponder (or ADS-B system) will be required in transponder-mandatory uncontrolled airspace.

Transmit ADS-B at all times. If you're leaving from, and returning to, controlled airspace, don't turn off ADS-B while in uncontrolled airspace (rule 91.247).

Turning the transponder off and then back on again when returning to controlled airspace can cause issues with the system's performance. And if you're turning off the ADS-B transmission you're losing its benefits.

In the interests of safety, we would strongly encourage you to transmit ADS-B data at all times.

We recognise it's difficult to remain unidentified on flight tracking websites – because ADS-B is open source data, and anyone with the necessary receiver can receive your transmissions – but there are options.

You can ask the flight tracking website to remove your aircraft's data from their website, but you may be charged a fee for this service.

> // Do not expect to be able to fly in controlled airspace after 31 December 2022 if your aircraft is not ADS-B equipped. //

Or you can ask the CAA to make your personal information private on the aircraft register and that information is then not displayed on the flight tracking websites.

The tracking data and aircraft registration, however, will still be shown.

Currently, the best option is to contact the FAA through their LADD (Limiting Aircraft Data Displayed) programme.

The CAA doesn't monitor flight tracking websites or use their data for prosecution purposes. The CAA uses flight tracking websites if a report or aviation-related concern is received, only as a first indication of whether there's something to actually investigate. Data from a flight tracking website isn't used as evidence.

Also, keep in mind that the information displayed on these websites should be taken with a pinch of salt. The information displayed can be delayed, or not adjusted for local QNH, or just an estimation of where the aircraft actually is.

If you're unable to equip with ADS-B due to your type of aircraft, take a look at rule 91.255E. It allows for the operation of "an aircraft without transmitting ADS-B data in the prescribed airspace…if the aircraft cannot practicably or reasonably be equipped with an ADS-B system because of the characteristics of the aircraft type".

To use this rule to fly in controlled airspace, you do need to receive specific authorisation from the relevant ATC unit.

The rule isn't for those who just don't want to equip their aircraft with ADS-B. It's for those who're unable to, or it's unreasonable to expect to them to – think hang gliders/paragliders, hot air balloons, or aircraft entering controlled airspace to get equipped with ADS-B.

Queries or comments?
Email **adsb@caa.govt.nz**

ARE YOU A 'CROWING ROOSTER'?

And how's the rest of your radio technique?

iStock.com/veerachonoat

When he was in Rarotonga, the head of training at Christchurch Aero Club, Ross Sparks, would be woken by the 3 am rooster.

"A second rooster, in the next village, would then start up. Then a third in the village after that, and so on."

He likens the radio practice of some pilots to those roosters.

"A pilot flying along the Canterbury coast might make a – totally unnecessary – position report, then another pilot in the foothills hears that and pushes their transmit button as well, without really thinking about what they're doing.

"Other pilots, hearing those two calls, also then rush to give a position report – even though all these pilots could be 50 km from each other."

Ross says this is a problem because it clutters the frequency with unnecessary chatter.

"It could impede another aircraft from making an important, or even urgent, transmission. Excessive and unneccesary calling confuses rather than enhances situational awareness.

"It can also pressure other operators to turn down their radio volume to concentrate on their work. Imagine an instructor trying to teach their student, or an ag operator, or parachute pilot listening to you make a call as you pass every creek or river while tracking along the coast.

"Use your common sense about whether you really need to make that radio call.

"A knee-jerk call, without giving thought as to whether you're in danger of conflict, is just poor radio practice."

// Use your common sense about whether you really need to make that radio call. //

So when should you push 'transmit'?

Ross and CAA Aviation Safety Advisor Carlton Campbell, offer some straight-forward tips on using the radio effectively.

The four Cs

To reduce 'noise', and to ensure others understand you when you do need to make a radio call, ensure that it's clear, concise, correct and consistent. Read the *Plane talking* GAP booklet for guidance.

This is particularly important in situations where there are nearby students who have English as their second language; or low experience pilots; or poor radio reception due to terrain shielding; or poor quality of equipment; or open cockpit aircraft.

Remember there may be aircraft near you operating NORDO (no radio).

Good lookout is essential to maintain situational awareness and is the primary tool in avoiding collision. Just because you've made a radio call doesn't mean you've met your obligation to safety. Only an effective lookout will ultimately ensure a collision is avoided.

Do not rely on tablet information. It can be incorrect because the information must travel via a ground station before being displayed. This can result in up to three minutes delay in the information reaching the screen. Remember that aircraft not equipped with ADS-B will not show on the screen.

The radio is no replacement for a good lookout. But it can help you look in the right place.

Joining

When joining at an uncontrolled aerodrome in a standard situation, call 10 NM out, overhead the field, and downwind to land.

Any extra calls need to be made only if procedurally required to avoid conflict, or if stated to do so on the *AIPNZ* visual departure/arrival, or aerodrome, chart.

In the circuit

Standard calls in the circuit are as follows: lining up and rolling; downwind; other times as specified on the aerodrome plate; and to avoid conflict. »

» Always aviate first. If the radio is busy and you haven't got your call in on downwind, fly the aircraft. Complete your set-up, turn base and make your call on base if necessary.

What is not required is a blind call asking, "Is there any traffic in the aerodrome traffic circuit?"

This may prompt an aircraft not relevant to your movements to call. Both calls then contribute to clutter. Other aircraft at the airfield may be NORDO, or possibly in an emergency situation but unable to make a radio call.

Lookout is the key to providing a safe separation in all these situations.

In transit lanes

Make a call before you enter the transit lane, and as required to avoid conflict.

If another aircraft enters the same transit lane from the opposite end at the same altitude as you, be proactive and change altitude for vertical separation. As you make that change, it's important you make a call stating what altitude you are now going to fly at.

A call to state you have that aircraft "in sight" and you are in their "2 o'clock one mile at 2000" will help the other aircraft sight you.

If you have one radio, using the adjacent airspace frequency would be prudent. If you have two boxes, it's advisable to monitor the tower frequency on the second for situational awareness of traffic entering the transit lane.

In MBZs

Make a call on entering any mandatory broadcast zone, with intentions and altitude. Then call as depicted on the chart, usually every 10 to 15 mins.

Obviously, make extra calls to avoid conflict, but generally maintain a listening watch to help keep the radio clear for any necessary calls.

In CFZs

They're not MBZs. Common frequency zones are simply areas where everyone with a radio should be operating on the same frequency.

There's no specified periodic number of radio calls to be made, so just call as required, at least when entering and departing the CFZ.

As an example, if you're tracking from point A to point B through a CFZ, you would make a call overhead point A "tracking to point B", and then again once you're overhead point B.

You would also make one when someone enters the same CFZ and could conflict with your path.

Mountainous terrain

When flying in mountainous terrain, be aware that other aircraft may not hear your call, so good lookout is vital.

Contacting a control or flight information service may be hard in mountainous terrain, so if you're getting close to your SARTIME, you may want to update it before you enter the mountains.

VRPs

No *Vector* reader should need to be told that visual reporting points denoted on the VNCs are prominent geographic features to assist traffic with unambiguous locations to report at.

VRPs become increasingly important in areas of high traffic, and special operations such as parachuting.

If you don't report at these points, other aircraft may not identify a potential threat to them and their activity. If tracking in a constant direction, and no terrain shielding is likely, it is not necessary to report at each and every VRP.

Finally, 119.1

119.1 MHz is the unattended aerodrome frequency for aerodromes without a dedicated frequency. End of.

Queries or comments?
Email **carlton.campbell@caa.govt.nz**

To request copies of the updated *How to be a pilot* GAP booklet and the updated *Standard overhead join and Standard overhead join (right-hand pattern)* posters, go to **aviation.govt.nz/education** > **order publications**.

IN THE TIME OF COVID-19, HOW FIT TO FLY ARE YOU?

More than a quarter of New Zealand's population has had, or currently has, COVID-19. Flu season is also upon us.

When you're sick, coughing, and struggling to breathe, of course you're not going to fly. But during recovery, the effects of COVID-19 on your body can have more impact on your general functioning than you'd expect from similar viral illnesses.

There's increasing evidence that about 20 percent of people who've had COVID-19 suffer longer term effects, including 'brain fog' which can quite severely affect cognitive function. You may be wise to consult a medical examiner if you think you're affected in this way.

So, don't expect to bounce back in a hurry. Your ability to read your body and apply the *I'M SAFE* acronym becomes very important.

Have a look at the new updated *I'M SAFE* poster on the back cover of this issue of *Vector*, and run through it with possible COVID-19 symptoms in mind.

Are you completely free from the illness? For pilots who regularly fly at high altitude – for instance, glider pilots – it's also worth remembering that your body's ability to take in oxygen may be further reduced due to the lingering effects of the illness. But, for all pilots who've had COVID-19, symptoms of hypoxia may occur at lower levels than you would normally experience.

The stress of having forced time off work and isolating with your family may also be affecting you, as could lingering fatigue – some people report fatigue symptoms that last for weeks after a COVID-19 infection.

Don't risk it

You may be desperate to get back in the air and doing what you love, and it's even harder if you fly for a living.

But if you're not fit to fly, the outcome can be tragic.

In two recent accidents in New Zealand, it was concluded by safety investigators that the pilots' health may have had an influence on their fatal IIMC encounters.

One had been diagnosed with a condition, a common symptom of which is fatigue. Other people had had concerns about his health in the months leading up to the accident and one witness said the pilot had shown clear signs of fatigue on recent flights, and on at least one occasion, needed help to get out of the aircraft.

As the report states, "Threats such as fatigue increases the likelihood of errors, leading to degraded situational awareness."

In the second accident, the pilot had reported to others that he had been experiencing "hazy" eyesight, but had not at that time seen a doctor, although he was continuing to fly.

It was not, however, able to be determined if this vision problem had contributed to the accident.

Nevertheless, a pilot's personal health and wellbeing on the day should be a key factor in their go-don't go decision.

Our new updated *I'M SAFE* poster, on the back cover, has been perforated so you can remove the poster from the magazine. If you'd like more copies, go to **aviation.govt.nz/education** > **order publications**.

And go to **aviation.govt.nz/covid-19** for guidance for medical examiners as well as participants.

LETTERS TO *VECTOR*

PLBs

We read with interest the events surrounding the loss of the gyrocopter Lionel Green was piloting in South Canterbury (*Vector,* Autumn 2022). Lionel is to be commended for all his contingency precautions.

We note, however, his choice of strapping his PLB to the back of his seat. The big clue in terms of how a PLB should be stored is in the word 'personal' and that should mean that the PLB is located 'on the person' and ***nowhere else***.

A pilot, or indeed a tramper or fisho, post-accident, may well be conscious but physically unable to reach a PLB that has either broken loose and departed the immediate scene, as it did in Lionel's case, or be semi-buried and inaccessible in a pilot's bag or panic kit.

There's also the very real potential, which has been borne out in actual accidents, that unsecured or inadequately secured PLBs can become inadvertent missiles when an aircraft impacts terrain.

PLBs require very little to be made wearable – on a belt or in a shirt pocket.

And they should be worn 100 percent of the time.

Terry Leach, Christchurch
Lloyd Klee, Tauranga

VFR into IMC

I always enjoy reading my copy of *Vector.* Compliments to the crew responsible for its production.

The "VFR into IMC" article published in the latest issue (Winter 2022) is a topic of keen interest to me.

There's no doubt that in my more than 50 years flying helicopters and GA aeroplanes, far too many fatal accidents occurred as the result of a pilot continuing flight in metrological conditions, often significantly below the regulatory VFR minima.

To flip that sad statistic, it's a fact none of these accidents would likely have occurred had the flight been conducted in compliance with CAA rules. To add to that, non-compliance with one or more CAA rules is a factor in almost every aircraft accident.

In my opinion, human factors in aviation ought not be primarily focused, for example, on why a pilot flew in marginal weather conditions, but more appropriately, on what motivated the pilot's decision to disregard and deliberately not comply with relevant aviation rules. Importantly, these are safety rules, not guidelines.

Citing another New Zealand statistic, for the 15 years from January 2000 (apart from a training accident) there have been no weather-related accidents involving GA aircraft, while operating on an IFR flight plan.

New Zealand statistics for the number of GA and private aircraft operators holding a current instrument rating are less than commendable, a matter inviting closer scrutiny. Not only does an individual pilot benefit from the additional training an instrument rating provides, but also from the annual competency check.

Operating under IFR for the private pilot has many safety advantages. Perhaps *Vector* might run a future article promoting the safety benefits of IFR flight…even when it's a blue sky day!

Barry Payne, Taupō

// DEAR VECTOR...

Reader comments and contributions on aviation safety are welcome. Email **education@caa.govt.nz** or the specialist whose name appears at the bottom of most articles. We may edit or shorten letters, or decide not to publish.

Plastic jerry cans

I recently read the article "Fuel – A dangerous 'good' for good reason" (*Vector*, Winter 2022). It states that plastic jerry cans must be less than five years old and approved for carriage by air.

I've read through Part 92 and cannot find this stipulation on containers/jerry cans. Could you please refer where in the rules this 5-year limitation is found?

Katie Edwards, Queenstown

CAA Dangerous Goods Senior Advisor, Jim Finlayson responds:

Hi Katie, thank you for your question.

Rule 92.7(a) states (in part) that goods must be packaged in accordance with ICAO's *Technical Instructions*. The requirements for jerry cans, along with all other DG packaging materials, are contained in these *Technical Instructions*, but it can be easier to read the *IATA Dangerous Goods Regulations*, which repeat the information contained in the *Technical Instructions*.

These documents are available via the ICAO and IATA websites, however, they're not free, and they're very complex sets of instructions. For personnel who've not undertaken a reasonable amount of DG training, they can be somewhat confusing.

I recommend reading, in the first instance, Advisory Circular AC92-2 *Carriage of Dangerous Goods*, particularly Appendix D, which has a guide to carriage of DG by air. This should provide a good overview and enough detail for smaller operators in New Zealand.

The five-year rule is in the *Technical Instructions*: "For plastic drums and jerricans, rigid plastic IBCs and composite IBCs with plastic inner receptacles…the period of use permitted for the transport of dangerous goods must be not more than five years from the date of manufacture of the receptacles, except where a shorter period of use is prescribed because of the nature of the substance to be transported."

This is also found in AC92-2 under the packaging requirements for various types of fuels.

Wrong captions

Just so you know that someone reads *Vector*, on page 20 of the Autumn 2022 issue ("Happy Landings") the photo of a 'Chipmunk' on approach caught my attention.

The only Chipmunk aircraft type that I'm aware of is a low-wing taildragger. In this case it looks remarkably like a C152!

Les Sharp, New Plymouth

CAA Aviation Safety Advisor, Carlton Campbell, responds:

Les, you are so correct, the captions of the two photos obviously got mixed up – well spotted!

READ *VECTOR* ONLINE

You want to keep up-to-date with *Vector* and *Vector Online* stories, but don't automatically receive a copy?

Go to our email notification service at

notifications.caa.govt.nz

and click on '*Vector* magazine on the web'.

You'll be sent an email every time there's something new to read.

And keep up-to-date in other areas

Go to our email notification service at **notifications.caa.govt.nz** and click on the Part numbers, or publications or information you're interested in. You'll be sent an email every time there's a new development.

CLARIFICATION AND APOLOGIES

Three-degree glideslope

We've received feedback on the article "Happy landings" (Autumn 2022) regarding this statement "… the 3-degree glideslope is also the safest for gliding to the runway if the engine fails …". This statement was an error and the article should not have brought gliding into the discussion, as it's an entirely different topic.

We apologise for confusing *Vector* readers and would like to emphasise that flying a 3-degree glideslope for a normal powered landing is best practice to achieve safe landings.

The best advice we can offer, when gliding in an engine failure situation, is to use the airspeed recommended by your aircraft manufacturer's operating manual.

Aircraft operator requirements poster

In the updated *Aircraft operator requirements poster*, published in the centre of the Autumn 2022 issue of *Vector*, we omitted the DL9 as an acceptable medical standard to fly some special category aircraft.

We've now reprinted this poster, with that, and some other, information included. If you need this reprint, go to **aviation.govt.nz/education** > **order publications**.

OCCURRENCES DASHBOARD

These are the number and type of occurrences reported to the CAA, 1 April 2022 to 30 June 2022.

Occurrence type

15	**Aircraft accident**
31	**Aerodrome incident**
354	**Aviation-related concern** (for example, complaints about low flying)
340	**Airspace incident**
485	**Bird strike**
247	**Defect**
15	**Dangerous goods occurrence**
14	**Hang glider accident** (all 14 involved paragliders)
412	**Operational incident** (anything not fitting into any other category – for example, a go-around)
20	**Navigation installation occurrence** (for example, a transmitter failure)
0	**Parachute accident**
4	**Promulgated information occurrence** (for example, inaccurate weather information)

AVIATION SAFETY ADVISORS

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

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

Mark Houston – Operations, North Island
027 221 3357 / mark.houston@caa.govt.nz

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

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

ACCIDENT BRIEFS

More accident briefs can be seen on the CAA website, **aviation.govt.nz** > **safety** > **aircraft accident briefs**. Some accidents are investigated by the Transport Accident Investigation Commission, **taic.org.nz**.

Rans S-19	
Date and time:	25-Jun-2017 at 15:00
Location:	Welshmans Creek
POB:	2
Damage:	Substantial
Nature of flight:	Private other
Pilot licence:	Advanced microlight pilot certificate
Age:	73 yrs
Flying hours (total):	267

The microlight was being operated on a private cross-country flight. The flight was part of a planned group fly-away with seven other aircraft, from Taieri to Omarama aerodromes for a group lunch on 25 June 2017.

At approximately 1129 hours New Zealand Standard Time (NZST), while in the cruise phase of flight at approximately 5000 ft above mean sea level the aircraft departed controlled flight, subsequently impacting terrain.

The Rescue Coordination Centre notified the Civil Aviation Authority of the missing aircraft at approximately 1500 hours NZST. The aircraft wreckage was located approximately three nautical miles south-east of Hyde in Central Otago. A rescue helicopter arrived at the wreckage site at approximately 1630 hours NZST. The pilot received fatal injuries. The passenger, who was also a pilot, suffered severe injuries, and was trapped inside the aircraft wreckage. They were subsequently airlifted to hospital.

The safety investigation identified the following contextual factors:

- The pilot let the passenger fly the aircraft.
- The passenger was not familiar with the cockpit ergonomic layout.
- The sensitivity and speed of the electric trim buttons may cause unintentional activation of the trim system.
- The out-of-trim control stick forces can be significant.

The full safety investigation report can be located on the CAA website.

CAA occurrence number 17/3767

Sigma Aircraft Sigma-4	
Date and time:	28-Mar-2022 at 09:09
Location:	Omaka
POB:	2
Damage:	Substantial
Nature of flight:	Private other
Age:	64 yrs
Flying hours (total):	1262
Flying hours (on type):	1222
Last 90 days:	11

The pilot reported that after take-off at approximately 200 feet, and over the aerodrome boundary fence, the engine coughed and spluttered. The pilot pushed the throttle fully open – however, a complete engine power loss occurred.

Due to a large vineyard ahead, the pilot initiated a turn back to an alternate runway at the aerodrome. It soon became apparent to the pilot that there was insufficient height available to make the runway. The pilot positioned the aircraft to land parallel with the wires supporting the grapevines. The aircraft landed heavily amongst the vines approximately 300 metres short of the runway.

The pilot and passenger suffered minor injuries.

The airfield conditions at the time of the accident were QNH 1022 hPa, temperature 14 degrees C, dew point 11 degrees C.

The CAA notes that, although the presence of carburettor ice in this occurrence cannot be confirmed, the ATSB Carburettor Icing Probability Chart for the ambient conditions at the time of the accident, indicates that serious carburettor icing was likely at any power setting.

CAA occurrence number 22/1585

ACCIDENT NOTIFICATION

24-hour 7-day toll-free telephone

0508 ACCIDENT (0508 222 433)

aviation.govt.nz/report

GA DEFECTS

GA defect reports relate only to aircraft of maximum certificated take-off weight of 9000 lb (4082 kg) or less. More GA defect reports can be seen on the CAA website, **aviation.govt.nz > aircraft > GA defect reports**.

KEY TO ABBREVIATIONS:

AD = airworthiness directive
NDT = non-destructive testing
P/N = part number
SB = service bulletin
TIS = time in service
TSI = time since installation
TSO = time since overhaul
TTIS = total time in service

De Havilland DH 82A Tiger Moth

Spark plug

Part manufacturer:	KLG
Part number:	V12/2
ATA chapter:	7100

During a flight, the insulator of the original specification number 1 cylinder KLG V12/2 spark plug blew out, puncturing a hole in the nose cowl and damaging both propeller blade rear faces. The pilot returned to land without further incident.

The cowl was repaired, a serviceable prop installed, the spark plug replaced, and all other spark plugs inspected. It appears that the nut retaining the spark plug insulator into the spark plug body may have unwound and the insulator then released.

CAA occurrence number 22/1236

Robinson R22 Beta

Starter engaged light wire

Part manufacturer:	OEM
ATA chapter:	8010

During routine maintenance, it was discovered that the starter engaged light wire had shorted to ground behind the instrument panel. This resulted in a situation where any time the starter was engaged, this wire would heat, melting the insulation off the wire and damaging the surrounding wiring loom.

The CAA notified the manufacturer of this problem, and they advised that they were looking into the wiring design to see if there were other intermittent circuits that were unfused.

CAA occurrence number 21/6955

Hughes 369D

Governor

ATA chapter:	7610
TTIS hours:	570

During flight, the pilot noticed the main rotor RPM fluctuating and a high oil temperature indication. A precautionary landing was carried out and the maintenance provider was advised.

During the maintenance investigation, the governor was removed for further investigation. The high oil temperature indication was found to be caused by the blower duct becoming partially unseated due to the rubber seal migrating from its position. This was likely due to misalignment in reconnecting following a scheduled maintenance check.

CAA occurrence number 21/4996

Eurocopter AS 350 B2

Oil filter cover

Part model:	03-120
Part manufacturer:	Safran
ATA chapter:	7900

After a flight, the pilot found engine oil on the tailboom of the helicopter. The maintenance investigation determined that the oil leak was from the engine oil filter cover.

A 150-hour inspection had just been completed on the helicopter, and although the maintenance manual procedures for filter installation had been followed, it appears that the T bolt securing the filter cover was not sufficiently tightened. The helicopter had completed a check flight after maintenance and had then flown to the operator's base prior to the flight when the oil leak was observed.

The maintenance provider notes that the 'tightening tolerance' described in the Safran manual does not have a specific torque setting. This could offer a subject tolerance to the level at which 'tight' is determined by an individual.

In response to the occurrence, the maintenance provider has added an extra maintenance action to re-check the torque on the filter T bolt following a maintenance ground run. The operator has now established the procedure to shut down the helicopter following the post-delivery flight to home base. An after-flight inspection by the pilot is to be carried out.

CAA occurrence number 21/2700

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.

Safety Message

Practise and exercise good judgement

Issued May 2022

The first four months of 2022 saw a significant number of landing accidents. There were 12 recorded as of the end of April.

Common themes are tailwinds, unexpected gusts and landing long with overruns.

Remember, the go-around is a normal flight manoeuvre:
Exercise good decision-making, practise go-arounds, and be aware of the conditions; situational awareness is key. If in doubt, there should be no doubt: **GO AROUND!**

Consider your competency and currency. Get some dual instruction to sharpen your skills.

Always review NOTAMs, aerodrome information, aircraft operating handbook, and the weather.

Fly safely: use the relevant information and make good decisions.

AM I FIT TO FLY? REMEMBER THE

I'M SAFE

CHECKLIST

I

ILLNESS
Free of illness
and symptoms

M

MEDICATION
Safe medication only

S

STRESS
Managing stress well
at home and at work

A

ALCOHOL AND DRUGS
Free of alcohol and
drugs and their effects

F

FATIGUE
Rested and
sleeping well

E

EATING
Fed, watered,
and ready to go

Te Kāwanatanga o Aotearoa
New Zealand Government

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