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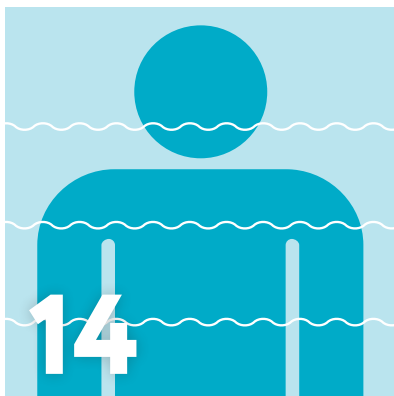
## SAFETY IN NUMBERS

The need for water is real

Civil and military aircraft sharing airspace

What is your life worth?





// THE NEED FOR WATER IS REAL



// CIVIL AND MILITARY AIRCRAFT SHARING AIRSPACE



// WHAT IS YOUR LIFE WORTH?

Cover: AOPA winter fly-in participants at Big Bay, north of Milford Sound. See the article "Safety in numbers" on page 4. Photo courtesy of Abbie Eaton.

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## vector

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## From the Director

As we head into December, and hopefully a great few months of flying, it's important to think about what you can do to help ensure New Zealand's skies are safe this summer.

In this edition of *Vector* we take a look at flyaways and summer flying safaris. We talk about how proper preflight briefings and ongoing oversight from someone within the flying group can make a significant difference to how safely these events run. So make sure you read the full story on page four.

We also go back to basics, with a story providing a timely reminder of the importance of making some fundamental checks before you even leave the hangar: a review of the latest weather forecast and all relevant NOTAMS.

Finally, now is a great time for aircraft owners to book in their aircraft for ADS-B installation. The government's announcement of a \$12.5 million ADS-B transponder grant programme means that owners of eligible New Zealand-registered aircraft, who install appropriate ADS-B OUT equipment, will be eligible for a grant of up to \$2500 plus GST to help with the costs of purchasing and installing equipment.

The grants will be retrospective to 14 June 2014, and will be allocated on a first-in, first-served basis. So make sure you talk to your avionics provider now and lock in a time for installation. The process to apply for a grant is still being worked through, so keep an eye on our web page, [aviation.govt.nz/adsb](http://aviation.govt.nz/adsb), for updates.

From all the team here at the Authority, have a fantastic Christmas and New Year break, and enjoy your summer flying.

Regards,

Graeme Harris

## FLYING LIMITATIONS

If your aircraft has a special category airworthiness certificate, or is a microlight, you need to be aware of the rules about flying over 'congested' areas.

A couple of recent incidents involving an ex-military aircraft have highlighted that some pilots may not be aware of the limitations about where they can fly.

According to rule 91.105(c), except for taking off and landing, the pilot of an aircraft with a special category airworthiness certificate (light sport, experimental, primary, amateur-built, exhibition, and limited) cannot fly over a congested area, unless authorised by the Director.

According to Part 1, that means "...any area which is substantially in use for residential, industrial, commercial, or recreational purposes".

The Director does grant authorisations in special cases, such as a one-off commemorative fly-past of ex-military aircraft.

Even if air traffic control clears the pilot of such an aircraft to depart over a congested area, the pilot needs to inform the controller they cannot comply and request another route.

"It's not up to ATC to know the category of your aircraft and any limitations on where it can fly," says Paula Moore, CAA's team leader of adventure aviation flight ops. "That responsibility lies with the pilot."

In a similar way, rule 103.155 says the pilot of a microlight shall not operate over a city or town, and this includes when taking off or landing. ⇨





# SAFETY IN NUMBERS

A couple of investigations into recent accidents have highlighted the importance of multiple-aircraft cross-country expeditions being well-organised, well-led, and marked by good communication.

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**C**AA Safety Investigator Dan Foley has examined two fatal accidents during informal flyaways in the past 18 months.

“In both flyaways, no-one had any official oversight of aircraft departures and arrivals, nor of the route each pilot intended to take. Neither had lodged a flight plan.

“When they were late, no-one really knew what they’d planned to do. Did they call in on a friend? Did they turn back? No-one knew for sure so there was a delay in raising the alarm.

“In those cases, that delay did not have an impact on the survivability of the aircrafts’ occupants.

“But with a similar lack of oversight in any future event, that could so easily be the case.”

Each year North Shore Aero Club hosts an eight-day South Island tour for up to 30 participants in about 10 aircraft.

North Shore CFI Daryl Gillett says participants get to build mountain flying experience and skills in a safe and supervised way, in breathtaking scenery, and in an environment very different to their normal one.

“And of course have some fun!” he says.

The Aircraft Owners and Pilots Association (AOPA) holds regular weekend fly-ins involving up to 60 aircraft landing on and departing multiple rural airfields and strips.

Participants divide into groups, based on their aircraft type and experience, with each group flying together to strips for the day.

“Flying as a group allows us to look out for one another, and share advice ‘in the moment’, says AOPA Life Member Murray Paterson. “It encourages camaraderie and helps build a supportive and non-criticising culture.”

For both organisations, the sharing of information – patently missing in the accidents investigated by Dan Foley – is absolutely key to safety.

## Good communication, thorough preparation

Murray Paterson says organiser-participant communication starts well before departure day.

“We question pilots registering for a fly-in about their experience, and currency with strip flying.

“That helps us to better understand them and their flying. Our questions also get them thinking about their flying too, and how much they will challenge themselves during the fly-in.”

Participants are sent information about the host airfield, including an arrival procedure, as well as details about the airstrips, including co-ordinates and length.

North Shore Aero Club holds a formal briefing one week before departure day introducing the safari participants to the rudiments of mountain flying, on surviving an accident in mountainous terrain, nuts ‘n bolts information about things like “the weight and balance stuff”, and baggage allowance.

Pilots are also supplied with satellite images of destination aerodromes. “We want to make sure everyone is as familiar with the stops as they can be,” says Daryl Gillett.

## Departure briefing

CAA Aviation Safety Advisor Carlton Campbell says a structured preflight brief is essential.

“I’ve sometimes watched a gaggle of aircraft take off to go somewhere together, after what I’ve thought was a pretty loose briefing.

“It’s easy to be too once-over-lightly, especially in this era of tech-dependence. Sometimes there isn’t enough discussion about what will happen if they encounter challenging weather or lose sight of one another.

“Ask the question, ‘what do we do if...?’. In other words, consider all the variables so there are strategies for making sure everyone is okay at the end.” »



// First stop of AOPA's Darfield fly-in, in September 2019: fly-in co-organiser Michael Oakley's farm at Hororata. Photo courtesy of Brian Curry.



// Participants in the 2019 North Shore Aero Club South Island trip carrying out their flight planning for an afternoon leg from Mandeville to Manapouri.  
Photo courtesy of Jamie Davis, North Shore Aero Club.

» During the North Shore safari, after each morning and afternoon briefing – destination, route, where to refuel – participants are given plenty of time to do their own flight planning.

“We expect them to do a proper job,” says Daryl Gillett, “but we also do a bit of a walkaround, checking who might be struggling, and needing help or advice from the instructors.”

At its briefing on the main flying day, Saturday, AOPA encourages any participant to share information, or voice concerns.

“It’s everyone’s responsibility to speak up,” says Murray Paterson. “We have an open communication style at the briefing which encourages participants to ask questions and tell others what they know.

“After the main briefing, we gather into groups and brief for the first strip of the day. Each briefing is a chance for anyone who has experience on that strip to speak up about it, agree on a group flight path and joining procedure, discuss the appropriate radio frequency, and any airspace or operational considerations.

“Members of each group also tell their leader at any briefing if they intend to leave the group and what they then plan to do.

“We brief one strip at a time – just what is required to complete the next flying task. Experience has taught us that keeps information overload to a minimum,” Murray says.

## Taking it seriously

After a couple of serious accidents in the mid-2000s, North Shore beefed up its safari procedures.

“We make it clear what we expect in competence, reliability, and expertise from our trip director, the instructors on the trip, and the participants,” says Daryl Gillett.

“We expect them to be on time to briefings, not to be out all hours the night before, and to do thorough flight planning.

“If they don’t, we don’t want them on our trip. They’re a risk to everyone.”

AOPA expects the same. “We require full and on-time attendance at our main briefing,” says Murray Paterson, “with map or device in hand, and full attention”.

The aero club appoints an experienced instructor as trip director, who’s ultimately in charge of making the important decisions.

“Other instructors pull the NOTAMs and the supplement at the start of each day,” says Daryl Gillett, “and give that part of the briefing. That happens again before each afternoon leg.”

## PIC responsibilities

Carlton Campbell says there sometimes isn’t enough emphasis on pilots remaining responsible for their own pilot-in-command decisions.

“If the formation separates or gets into a challenging situation – with weather for instance – pilots need to make decisions based on their own limits.

“The moment they try to fly to somebody else’s limits, they can get themselves into real strife.

“‘Group-think’ can also lead to poor situational awareness, as with a group who once blindly followed the leading aircraft on to a closed and ‘notammed’ runway.”

## The problem with technology

Dan Foley says in becoming more reliant on technology, people have to be careful not to become lazy.

“You just key in your destination, and the software can tell you how long it’s going to take to get there, what your fuel burn will be, and even what frequency you need to be on.

“What that means though is that the tech-dependent pilot is lacking that two or three-day build-up to flying when they’re thinking about the flight and preparing themselves; mentally putting themselves in the aircraft cockpit, and ‘flying the aircraft from here to there’ on paper before they go.

“Now you just tap in the destination and the software will draw a straight line from where you are.

“So you fly it as a straight line, maybe with the autopilot on, and you have minimal situational awareness.

“The problem is the straight line doesn’t always indicate tricky topography in the middle of the route. One fatal accident I’m aware of, is a pilot flying through hills, following the ‘straight line’. He had so little situational awareness he flew straight into the side of a hill.”

## Catering for different flying experience

Carlton Campbell suggests less experienced pilots go ahead of more experienced ones.

“Otherwise, they’re so focussed on keeping up with the more senior pilot, they lose situational awareness.

“If the leading aircraft suddenly goes behind a ridge or whatever, the less experienced pilot realises they haven’t been paying attention to their navigation and can be in a bit of trouble.

“The senior, more experienced pilot has the brain space to fly, and to advise and guide, so should take the trail position. That applies to bigger groups as well.”

With a wide range of participant flying experience, both AOPA and North Shore aim decision-making at the lowest-hours pilot.

“We make pretty conservative weather decisions,” says Daryl. “We wouldn’t generally fly if the winds were above 15 to 20 knots at ground level, for instance.”

Low-time pilots usually fly with an instructor during a North Shore safari, and AOPA encourages more experienced pilots to mentor low-hours ones.

“Identifying people who are really challenging their experience or currency is essential,” says Murray Paterson. “Buddying up with a more experienced person works well.”

## Enroute safety

Murray Paterson says fly-in participants fly close to their performance limits, landing on farm and topdressing strips, and unprepared paddocks. Safety is paramount.

“Key safety messages at the Saturday briefing reflect what we expect of our participants: to make conservative and sound decisions, like early calls to go around or not putting pressure on ourselves – or others – to land on a strip we’re unsure of.

“Each pilot is in command of their aircraft but also has responsibility to the group.

“We emphasise eyes out – including passengers – lights on, and radios tuned to the correct frequency, for essential communication only.

“We also make it clear that pilot decisions to stay safe – like going around or holding off joining an overcrowded circuit – will be applauded.

“We aim to remove group pressure and testosterone from proceedings.”

Daryl says if a pilot is using a club aircraft on safari, they must file a VFR flight plan.

In addition, the safari operates a flight following procedure.

“We have a sheet for each leg with a list of the participant aircraft. Before each departure, every pilot-in-command has to seek out the instructor who holds this form, and indicate which route they’re taking, what their fuel endurance is, POB and their names, and then signs that form.

“When they get to the destination, they sign the form again.

“So when they’re overdue we’ve got all the information we need to track them down ourselves, or pass on to the authorities.”

At AOPA fly-ins, group leaders are the first to land on each strip. Conditions, including taxiing hazards, such as rabbit holes, are radioed to the rest of the group.

Daryl Gillett says all the preparation, safety measures and expectations of ‘professionalism’ don’t swamp the event.

“It can be run well with a high level of safety and professionalism without being overbearing.

“Everyone comes back from the South Island absolutely fizzing. They talk about it for months afterwards.” ➔

# PARAPARA ... UM ... ?

// By Liz Hardy, Airways senior flight service specialist

Communicating is essential in a busy mandatory broadcast zone like Paraparaumu. It's also one of only two aerodromes with an aerodrome flight information service.

If you're heading near Paraparaumu or Milford, brush up on aerodrome flight information service (AFIS) procedures. Plan your calls well in advance to avoid floundering on the radio.

For Paraparaumu, check out the MBZ detail on Visual Navigation Chart (VNC) C2 as part of your preflight planning – it has some interesting features, including three different upper limits.

The Paraparaumu MBZ extends up to 4 NM beyond Kapiti Island to the west from Paraparaumu to Pukerua Bay. Transiting should not be difficult if you know how an AFIS functions, and its radio requirements.

The MBZ is transponder-mandatory 1500 ft and above, but it's best practice to operate your transponder in Mode C at all times.

## Operating within the vicinity of the aerodrome

Only call when you're ready, not before your engine run-ups, and so on.

First, establish communication:

Pilot: "Paraparam flight service, Alpha Bravo Charlie" (note placename abbreviation)

AFIS: "Alpha Bravo Charlie, Paraparam flight service"

Then intentions:

Pilot: "Alpha Bravo Charlie, C152 on the aero club apron, vacating north off runway 34, POB 1"

AFIS: "Alpha Bravo Charlie, seal 34, wind 340 5-10 knots, QNH 1013, no reported traffic"

Pilot: "Seal 34, QNH 1013, taxiing via taxiway Delta and Alpha, Alpha Bravo Charlie".

When AFIS is passing traffic information, they may say something like this:

"No reported traffic"

There's no reported traffic operating in the MBZ. But remember this does not account for any aircraft that haven't made themselves known to AFIS.

"Traffic is ...."





There's traffic that could affect your flight. AFIS will pass traffic information only on aircraft that could affect your flight, not all the traffic operating in the MBZ.

Where there are multiple aircraft, AFIS will try to group them together to help you remember where everyone is, eg, four aircraft operating in the circuit, three aircraft northbound, north of Paraparaumu.

If AFIS foresees a potential conflict, they will try to alert you. AFIS will say something like this:

“Report sighting C152 climbing upwind”

There's an aircraft going to occupy the same space as you (in this case, upwind/crosswind) and you haven't indicated if you have seen it and how you will fly around each other.

“Report position”

AFIS is double-checking where you are to maintain their picture.

“Advise intentions once airborne”

You've only advised your taxi route and not what your activity will be, and AFIS cannot give you relevant traffic information.

“Caution C152 short final seal 34”

AFIS is elevating traffic information to indicate there's an aircraft close to you. You need to act and communicate what you're doing.

## Beyond the vicinity of the aerodrome in the MBZ

If you're transiting the MBZ and your flight doesn't take you near the vicinity of the aerodrome, you don't have to communicate with AFIS. However, you do have to make the mandatory broadcasts to “Paraparaumu traffic” (note placename is now in full).

Similarly, if you've left the vicinity of the aerodrome, and are operating within the MBZ (typically between Peka Peka and Otaki, or around Kapiti Island), unless you're returning to the circuit you don't need to direct your calls to AFIS – just “Paraparaumu traffic” or “Otaki traffic”.

When you vacate the MBZ it's good practice to let traffic know you've left. AFIS will take note so they don't pass you as traffic to inbound aircraft. You can request QNH for your onward journey. ➡

## // WHAT IS AFIS?

It isn't a small insect that eats your plants. It also isn't air traffic control.

AFIS is an *advisory* service that passes on weather and traffic information to help pilots make safe decisions.

This service provides an extra layer of safety at an aerodrome with a high number of movements, but not enough to require air traffic control. Currently, there are only two AFIS aerodromes: Milford and Paraparaumu.

On first contact, establish communications with AFIS. Then give your call sign, aircraft type, position (location and altitude), POB, and what your intentions are (eg, to join the circuit).

AFIS will respond with QNH, weather information, runway-in-use and relevant traffic information.

Reply by acknowledging the conditions, runway-in-use, and QNH. Then state what you're doing so other pilots can integrate with you.

Use these terms to describe your intentions:

**Joining** – means you want to join the aerodrome for circuits, or to land. AFIS will give you weather and traffic information related to your route and landing.

**Vacating** – means you want to depart the airspace. AFIS will not keep tabs on you once you're gone.

**Operating** – means you're intending to vacate the circuit to operate in a specific area within the local airspace. This means AFIS will expect you will, at some stage, return to land, or vacate the airspace.

**Transiting** – means you're passing overhead through the airspace. AFIS will give you the local QNH and known traffic information.

**Remain in the circuit** – AFIS will give you full weather information and traffic related to operating in the circuit.

If you've just heard the QNH, conditions, and traffic from another aircraft's transmission, you can simply say, for example, “roger traffic and conditions QNH 1013”.

You're responsible for safely maintaining separation and sequencing with other traffic. AFIS helps you form the mental picture to do that.

Don't be afraid to talk directly to other aircraft if you are trying to integrate with them for sequencing.

Refer to AC91-9 *Radiotelephony Manual*.

See these GAP booklets for more information:

*Plane talking*

*New Zealand airspace.*

Visit [aviation.govt.nz](http://aviation.govt.nz) and search on those titles, or email [info@caa.govt.nz](mailto:info@caa.govt.nz) for a printed copy.

# ENGAGEMENT AND TOP-DOWN COMMITMENT

A finalist in the CAA's new safety award outlines the work that triggered the nomination.

**F**or Josh Haslemore – one of three finalists in the CAA's inaugural Young Aviation Professional Award – modernising a safety culture starts with engagement.

Josh's nomination was for his work in updating the standard operating procedures of the Auckland Coastguard Air Patrol – of which he is chairperson – and for establishing a robust safety management system for the organisation.

## All in his own time

As well as his up to 10 hours a week volunteer commitment to the air patrol committee, and – during summer – more weekly hours as an operational inflight co-ordinator, he has a full-time day job as a senior safety specialist with Air New Zealand.

As part of establishing an SMS, the 27-year-old – the youngest coastguard committee chair in the country – led work in improving hazard identification and risk evaluation, introducing processes of continual improvement, and digitising procedures and records.

It's been, and continues to be, a big job that began by engaging with air patrol volunteers and with the wider Coastguard service.

"It's been challenging," says Josh. "We have a range of ages, new recruits and veterans, differing degrees of flying experience and therefore differing appetites for risk.

"When you have a seemingly safe flying culture, it's testing for some long-serving members of an organisation to accept there's an even better way of doing it.

"But we put in place robust and appropriate procedures and training so that our volunteers – whatever their experience and appetite for risk – operate to the same standard."

Josh says that, nevertheless, all volunteers know that if they're uncertain about a mission, the lines of communication are well and truly open.

"If need be, pilots are able to call our chief pilot for further advice should they have any uncertainty about operating on the day. Not being able to fly is at times a reality of the operation and, although we're a vital asset in saving lives, our crew's safety is at the forefront of what we do."

## Slow and steady

Josh says that given the breadth of changes made to improve safety, the committee took things slowly.

"I can't stress enough the importance of doing this gradually, to avoid alienating those whose buy-in we need the most.

"We try to keep safety and risk management simple. Overloading staff and volunteers with safety information just for the sake of compliance is ineffective and it ends up doing more harm than good."

Josh also reshaped the relationship between the four-person air patrol committee and its 27 volunteers.

"Relatively speaking, we are a very young committee and we see our role as supporting the volunteers and their work, rather than the committee occupying the upper strata of a two-level hierarchy."

That approach has led to increased reporting, and more volunteers turning up to training nights.

"They're increasingly engaged, which is actually measurable though a constant stream of feedback to the committee.

"Without this engagement, the safety system just wouldn't work."



// Josh Haslemore

### A wider alliance

In the past, the Northland and Auckland Coastguard Air Patrols operated pretty independently of each other, despite coming under the one umbrella of Coastguard Northern Region (CNR).

So Josh reached out to his counterparts in Northland, Willy Morton and Murray Miskelly, and they've since shared the work of improving standard operating procedures and ensuring those SOPs are fit for the purpose of conducting maritime search ops.

"We used to be very separate entities," says Josh, "but now we're collaborating a lot more, linking in remotely to see what each other is up to."

Josh says another 'must' was top-down commitment to putting safety at the heart of everything the patrols do.

"That applies to any organisation: whether its aim is to make money, or save lives at sea, working with those at the helm, showing them how safety aligns with the goals of the organisation, is vital to success.

"I really appreciate Willy and Murray joining me on this challenging road," he says.

"Without buy-in at the top, implementing an effective safety management system just isn't possible.

// **I can't stress enough the importance of doing this gradually, to avoid alienating those whose buy-in we need the most.** //

"The CEO of Coastguard Northern Region, Callum Gillespie, and CNR board member Roy Savage, have been invaluable parties in supporting change within the air patrols. They, too, don't see compliance as an end goal. They don't see safety as something you 'achieve' then put in a box. They see it ever-evolving."

To illustrate continual improvement, Josh says the patrol's newly created risk register is reviewed every month, together with a re-evaluation of how risk controls are working.

"We might also decide a risk needs to be re-evaluated, or there might be an emerging risk we need to start looking at or focussing on a bit more.

"This stuff is never static." ☞

# USING ELECTRONIC LOGBOOKS THE RIGHT WAY

More and more people are using electronic pilot logbooks and that's fine but you still have to keep on top of some paperwork.

**T**he prime purpose of the logbook is to maintain a record of flight time to meet the requirements of Part 61 *Pilot Licences and Ratings*.

Your logbook must be maintained regularly.

The Civil Aviation Rules still require paper logbooks but you can save yourself time by using an electronic version for all your individual entries.

The CAA's Principal Aviation Examiner, David Harrison, says the CAA has started work on officially incorporating the use of electronic logbooks into the rules.

In the meantime, he says people should adopt a simple procedure once a month that will save them having to maintain parallel systems.

“At the end of every month – print out your full electronic records for that period and keep them in a ring binder or similar.

“Then using the monthly summary that you get from your electronic logbook, enter a handwritten version of that into your paper logbook.

“That way you stay compliant with the intent of the rule.”

David says if there are any stickers or renewals to enter, they still go in the paper logbook.

Whether paper or electronic, requirements for filling out the logbook are the same. For example, entries should be made within seven days following a flight and details should be recorded as required by rule:

61.29 *Pilot logbooks general requirements.* [↗](#)



I learned about flying from that //

# WHEN A SUNSET ISN'T PRETTY

Even experienced pilots make errors in assessing available daylight, let alone a pilot with just 125 hours. This one got a real wake-up call to double-check everything when planning a flight.

Photo: istockphoto.com/luchschen

I was flying from Tauranga to Gisborne to visit friends. Before departure I checked the AIP GEN 2.7 daylight tables so I would be back home in the light. I noted end of daylight was to be 0545 UTC (1845 NZDT).

After spending a pleasant day in Gisborne, knowing my flight time would be less than an hour, I departed GS around 0440 UTC (1740 NZDT).

Enroute, I thought sunset was occurring more quickly than I was expecting. I rechecked the GEN 2.7 and found, to my alarm, that I had misread the table. I'd used the Zone 1 end-of-daylight at 0545 UTC, instead of Zone 2, which was 0527 UTC: a rather significant mistake of 18 minutes when I'd only allowed about a 10-minute daylight safety margin!

Immediately I contacted Bay Approach, explained my situation and asked for their advice and assistance.

The air traffic controller asked me a number of pertinent questions like the cloud (nil) and visibility (fine) at my position, and fuel status (two hours).

This air traffic controller was excellent: he asked me to 'stay with' him and over the next 15 minutes was in regular contact.

He asked if I preferred to continue on to TG or land at Whakatane, which was only minutes away at the time. I said Tauranga, given that it was on the edge of Zone 1, and light conditions would still be in my favour.

He came back five minutes later, saying that TG Tower were okay with me landing there. He said he'd monitor my progress and to contact him if I needed anything further. At this point I contacted TG Tower, while still monitoring Bay Approach. »

// I found, to my alarm, that I had misread the table. //

» Tauranga Tower asked if I'd like some vehicle lighting at the threshold as I had only nav and strobe lights. I accepted the offer, since I'd never landed in semi-dark conditions, and I didn't know how well I'd be able to judge my precise elevation just before touchdown, if going only by runway side lighting.

(As it turned out my strobe lights lit up the runway when I was still about 20 ft AGL so it was easy to judge the touchdown, and there was still just enough twilight for me to taxi to the hangar.)

I orbited twice waiting for the vehicle lighting to be put in place and made a safe and smooth landing without any control or visibility issues.

### What did I learn?

- Check and then *re-check* all the information I'm using to make flight planning decisions.
- Allow a greater time safety margin when planning flights that will be anywhere near end-of-daylight.
- We've got an excellent resource in ATC. Both Bay Approach and TG Tower were calm, reassuring and extremely helpful.
- Self-reporting is a positive thing to do so, hopefully, pilots can learn from other pilots' mistakes.

### The CAA:

#### What did this pilot do right?

- Contacted ATC straight away to explain situation and ask for advice.
- Didn't allow pride to prevent him accepting all help to land safely.
- Reported the occurrence.

### And finally...

CAA flight examiner John Parker says there's a reason most aero clubs require their aircraft to be back on the ground at least 30 minutes before evening civil twilight.

"It allows for unexpected delays. It's the same reason aircraft have reserve fuel. You don't plan to use it, but it's there if you need it." ✈️

# THE NEED FOR WATER IS REAL



A health and safety expert and trained medic, who's worked in some extreme environments, has seen first-hand the effects of dehydration. He says pilots in a hot New Zealand summer are a high-risk group as some have poor awareness of how it can impact them.

**T**om O'Donnell has worked on pipeline projects in Saudi Arabia and offshore oil rigs in Northern Australia.

He's also an aircraft owner, who flies his Cessna 180 to some of the more remote parts of the South Island.

Tom says safety issues often have a commonality across industries, and dehydration is one that has the potential to lead to accidents and injuries in the aviation sector.

He's seen many incidents of severe dehydration as a medic in Western Australia where the temperatures regularly get to 40 plus degrees Celsius.

“They head out and they just leave their water behind and get dehydrated. They get focussed on their work and don’t plan for or have a good water tool onboard.

“One guy we medivaced who was showing signs of kidney damage, told me he’d been drinking plenty and then I talked to his workmate who said ‘I was telling him to drink water but he just wanted to finish the job’.

“I suspect there are days when pilots have that kind of drive and focus too, and they forget or decide not to drink.”

Dehydration can impair performance – through to a decline in peripheral vision and logical thinking, which is when usual practices like pre-flight checklists can fall by the wayside.

“I remember an ag pilot who was involved in an accident in the Otago region some years ago.

“He told me ‘I was dehydrated, I wasn’t making good decisions, and just realised I had to get on the ground’. On trying to land he turned the aircraft over.”

Tom believes there’s more potential for cases of dehydration in the agricultural industry where pilots can work very long days in summer.

“Other pilots might fly from A to B, drop people off, go to the toilet, have a cup of tea. They are in a position where they can get drinks, etc. But sometimes ag pilots don’t get this luxury and then there’s perceived pressure to get the job done.”

## Check yourself and your workmates

Tom says it’s not that easy to recognise when someone is dehydrated.

“People who are dehydrated get very tired or grumpy so it would be quite easy to mistake it for tiredness or someone having a bad day.

“Loader drivers can help out with fluids when it’s refuelling time; fuel both the pilot and the plane.

“Just thinking of some flying days I’ve had where I’ve been really tested, with route finding, bad weather etc. The tipping point to a very poor outcome could be dehydration.

“Urine colour is a good indicator of hydration levels. Normally, it should be clear with a yellowish tint. Darker yellow is a sign that you need more water, though that’s hard to see when you’re having a leak behind the wing. If you haven’t felt the need to urinate in two hours you may be dehydrated.

## Plan to drink

In the peak of summer a combination of factors can produce extreme temperatures.

“It’s not uncommon for it to be 36 degrees Celsius inside a machine on the Wanaka airstrip in summer. So you get somebody in the cockpit of a Fletcher for example, over a full day, there’s potential to become dehydrated which can lead to other heat related conditions.”

He says some pilots don’t have a plan for getting water or they don’t even have it in the cockpit.

“If it’s going to be a hot day, plan for that. I’ve been using a camel pack on long days – two litres of water on tap. I secure it in the aircraft and it’s got a hose with a self closing valve so there’s no issue with water leaking.”

The best way to keep hydrated is to eat and drink regularly. Drink around 4 litres of water every 8 hours of hot flying.

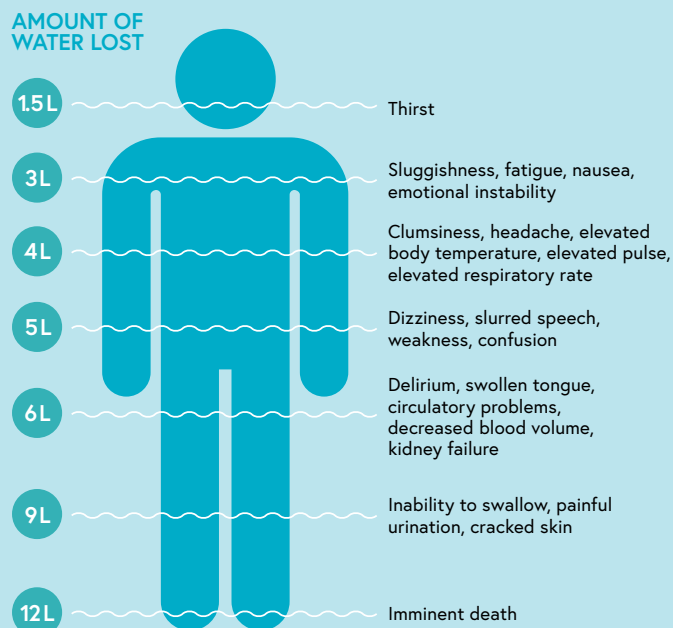
Tom says some pilots won’t drink because then they know they’ll have to land somewhere to relieve themselves and they don’t want the hassle.

But the consequences of not staying hydrated could be far worse.

Severe dehydration can lead to heat stress and heat stroke and seriously impair your decision making and performance.

“Build drink and toilet stops into your preflight planning. When you’re on a road trip you take breaks, do the same when you’re in the air.” ➤

## Symptoms of dehydration





// A T6C Texan II conducting navigation training. All photos courtesy of the RNZAF.

# CIVIL AND MILITARY AIRCRAFT SHARING AIRSPACE

There have been some close calls, so here's a heads-up from the RNZAF to look out for military aircraft conducting low-level flying.

**A**t virtually any time, between seven and twenty pilots or trainee instructors are training with Number 14 Squadron and the Central Flying School of the Royal New Zealand Air Force, flying the T6C Texan II.

For two to three months, the students learn about low-level visual navigation. It's preparing them for the operational uses of low flying such as tactical airborne resupply, helicopter troop insertions and search and rescue operations.

They can be doing this training in uncontrolled airspace, virtually anywhere in the country.

Low flying in the Texan is at 250-500 ft AGL and speeds between 180 and 240 kts. That speed and close proximity to terrain can make for high pilot workload. And that can make it challenging for the students to see obstacles or hazards until they're within close range.

Air force tactical pilotage charts display hazards such as transmission lines and towers. But another significant threat – not on the charts – is other low-flying aircraft; for instance, those conducting agricultural operations.



The RNZAF teaches its pilots to, at all times, ‘know – see and avoid’ hazards as far as is practical. Notwithstanding this all pilots maintaining a vigilant lookout may be the single most important way to avoid close calls or mid-air collisions. Sometimes though, even with the most vigilant lookout, other aircraft may be missed or obscured by terrain.

Accurate and regular radio calls and active transponders, however, increase aircraft visibility.

The T6C Texan has TCAS (traffic collision alerting system) which ‘interrogates’ the transponders of nearby aircraft and provides an alert to the pilot – although it doesn’t provide avoidance instructions.

So if a civilian aircraft has a transponder, its pilot should make sure it’s active – preferably mode C or S to provide information about altitude.

Military helicopter training is currently done *without* TCAS.

During low-level training, the Augusta 109s, NH90s, and Sea Sprites operate between about 100 ft and 250 ft AGL, and at about 120 kts. But they can also be hovering or stopping anywhere, as well as operating right down to the ground, particularly in mountainous areas.

Without TCAS, they’re relying solely on visual look-out and radio comms to know, see and avoid.

Regular and accurate position reporting by civilian pilots, therefore, is essential to building the low-flying student’s situational awareness – and avoiding a collision.

Air force C-130s are equipped with TCAS, and operate between 250 ft and 500 ft, and about 210 kts, in low-flying training.

As with the Texans and the helicopter fleet, expect the C-130s anywhere in uncontrolled airspace, except built-up areas, restricted or danger areas, and civilian low-flying zones.

Occasionally the RNZAF may host foreign militaries during combined training exercises and there can be a number of other aircraft operating as part of the same exercise.

The RNZAF often requests a NOTAM be issued for periods of low flying by the Texans and other fleets, and it sends out a ‘low level flight advice’ (LLFA) to a number of civilian operators.

The RNZAF is always keen to have closer contact with general aviation when there’s high-intensity flying planned, such as with a large agricultural operation.



// At virtually any time, the Texan can be flying in uncontrolled airspace near you.



// You can get low level flight advice (shown here) from the RNZAF.

If your organisation is planning such activity, the air force would therefore, be grateful to hear from you via this email address: [oh.a3.wk@nzdf.mil.nz](mailto:oh.a3.wk@nzdf.mil.nz)

If you want to receive LLFAs, or receive more information, use the same email address. ➡

# Is that AD *really* signed off?

ADs address serious safety issues, so sloppy wording could end in disaster.

“Way back,” says the engineer, “when I was working in Taiwan, I was involved in bringing a Robinson R44 into New Zealand.

“And I looked at the maintenance records, and in particular the applicability of the service bulletins.

“These were recorded in Chinese, but the service bulletin number was in English and someone had written ‘yes’ against the service bulletin.

“So I assumed that meant ‘yes, compliance had been carried out’. But what it actually meant was, ‘yes, compliance has yet to be carried out’.

“So I see this ‘yes’. And I go, ‘okay it’s been done’, and I sign off the New Zealand airworthiness directive as ‘found embodied’ – based only on that ‘yes’ on the service bulletin.”

## The terms to use

As per the AD logbook, there are just three terms that certify an airworthiness directive.

The first – ‘embodied’ – means you’ve assessed the AD and actioned its requirement(s).

‘Embodied’ also certifies you’ve checked that it’s recorded as such in the appropriate maintenance logbook.

The second – ‘found embodied’ – means you’ve assessed the AD, and found that its requirements have previously been carried out and certified. No further work is needed to comply.

And ‘not applicable’ means you’ve assessed the AD and have determined the airworthiness directive does not apply to the aircraft, or the affected aeronautical component is not installed.

## Almost disaster

“This particular service bulletin,” says the engineer, taking up his story again, “was about replacing the V-belt restraint panel assembly with a heavier gauge panel because the previous, light ones were cracking.

“Some time later, during a frost control operation here in New Zealand, the panel broke off and went through the belt drive system of the helicopter.

“It was only then that I realised ‘yes’ on that service bulletin did not mean ‘yes, it had been done’.

“Even though the belt drive system was damaged the aircraft landed okay.

“Still, when I talk to people about it even today, I can get quite emotional about what could have happened, and that it would have been my fault.”



// ...it's going to end badly if the AD is not certified correctly. //

## // FIND OUT MORE

For service bulletin compliance refer to Continuing Airworthiness Notice (CAN) 05-002, available on the CAA website at [aviation.govt.nz](http://aviation.govt.nz) > aircraft > airworthiness > airworthiness directives > continuing airworthiness notices.

CAN 05-002 provides guidance for aircraft operators and maintenance engineers regarding the assessment of, and their decision as to whether they need to comply with, manufacturers' service information.

### Confusion reigns

The issue has been recently highlighted by a nose wheel collapse landing in Gisborne. On examining his own books the operator found somebody had written 'not applicable' in the AD logbook.

"In a situation similar to the R44 helicopter example," says CAA Aviation Safety Advisor John Keyzer, "the person who wrote 'not applicable' on that AD did so because somebody else had certified the service bulletin as 'found embodied'. This was again due to confusion in the transfer of records from the aircraft's foreign logbook.

"The truth of the matter was, it was never done."

### What the law says

The Civil Aviation Act 1990 states that "where the Director believes on reasonable grounds that an unsafe condition exists in any aircraft or aeronautical product; and that condition is likely to exist or develop in any other aircraft or aeronautical products of the same design, the Director may, by notice in writing, issue an airworthiness directive..." s72I (3A).

John Keyzer says an airworthiness directive is issued because a serious safety concern has been identified here in New Zealand, or internationally.

"So if you get it wrong," says John, "the consequences are usually going to be bad."

The aircraft operator is ultimately responsible for making sure ADs are complied with, and certified appropriately.

It's not the responsibility of your maintenance provider.

You might arrange for them to receive AD notifications and to carry out the necessary work on the aircraft, but you're the one the buck stops with!

It's still the person who can certify release-to-service, however, who signs off the ADs.

"It's important that if there's more than one part to the AD," says John, "the engineer individually lists the parts of the AD, and certifies and signs them off separately. If you just write 'embodied' once on the AD, which part are you certifying is embodied?"

"I like to think that it's not a widespread problem, but it does exist," he says, "and it's going to end badly if the AD is not certified correctly.

"It's really important to be 100 percent sure in your determination of an AD, and in communicating that properly by using the 'remarks' column in the AD logbook."

### Shifting blame won't make you feel better

The engineer says his almost-disaster happened because of simple assumption.


"I never checked. I guess I could have said, 'well, it's not really my fault. The operator never checked either, and he was ultimately responsible for making sure ADs were complied with.

"But that's not really going to keep me off the hook. I'm still going to have an accident, maybe worse, on my conscience." 🙄

# WHAT IS YOUR LIFE WORTH?



A CAA safety investigator of 20 years' experience, Peter Stevenson-Wright, describes what he believes are two of the most frequent factors in incidents and accidents – not getting weather forecasts and not checking NOTAMs and AIP Supplements.



**F**rom my two decades as a safety investigator, I can recall many accidents, some fatal, where not getting a weather forecast was a contributing factor.

Two, in particular, stick in my mind.

One was a beautiful day and a pilot was taking a friend for a short local flight. The benign conditions probably persuaded the pilot they didn't need a forecast, and indeed the weather held on departure.

But just over an hour later, both pilot and passenger were dead.

Clearly the pilot did not anticipate getting caught in mechanical turbulence associated with a fast-moving frontal system.<sup>1</sup>

But that is what a forecast is for – to allow pilots to 'see' the unseeable.

(The pilot, the investigation also uncovered, was flying below the prescribed minimum height for a VFR flight – check rule 91.311).

In the second instance, another pilot was planning a short 25 NM flight. The sky at the time was essentially overcast with all the local mountain range tops hidden in the cloud base.

That area forecast indicated the cloud base was also below the height of a saddle the flight intended to cross.

But the pilot didn't obtain the forecast.

The aircraft collided with terrain while trying to execute a reversal turn in the narrow confines at the head of a river valley. A family of four lost their lives.<sup>2</sup>

### **It's really easy to 'get the weather'**

Access to the MetFlight GA website is free and it takes just a moment to log on: [metflight.metra.co.nz](http://metflight.metra.co.nz)

Information offered includes current and forecast weather, including GARFORs. Interpretation of the weather and overlaying it onto the route you intend to fly is well worth the investment, especially on complex weather days.

The importance of creating a strong mental picture of enroute conditions is critical to the safety of the proposed flight. »

<sup>1</sup> Fatal accident report 17/1635 [aviation.govt.nz](http://aviation.govt.nz) > Safety > Fatal accident reports

<sup>2</sup> Fatal accident report 15/1129 [aviation.govt.nz](http://aviation.govt.nz) > Safety > Fatal accident reports

» Using and being familiar with all MetFlight GA weather information and forecasts will help you make safer preflight and enroute decisions.

It also satisfies the requirements of rule 91.217 (see next page). Some pilots will debate that they don't need the weather for a short flight and on a perfect CAVOK (cloud and visibility okay) day they might have an awesome flight.

But I would say to those pilots that the benefits of being familiar with all relevant weather information far outweigh the disadvantages and increased stress they'll experience when they wish they'd got that information.

I'd say to them that if they turn back or divert because of weather, they'll have bragging rights about a great decision. But if they press on, they might remove the opportunity to have bragging rights. About anything. Ever again.

Some pilots make use of non-approved websites offering flight information. Pilots have found they provide additional and useful information to help their mental picture of the flight and route ahead. But the information is not always verified, and in my opinion, doesn't always cut the mustard.

As an example, while one popular, but unapproved, website offers additional and useful weather information, some of the aviation-specific data it provides may not be verified.

For instance, I've found it to be inexact in certain areas. In the most extreme case I've noted, it overstated a runway's length by 210 metres and its width by 30 metres (see 6 in the box on next page).

In another recent case, a pilot reported they had used this website to check NOTAMs, and when he found there were none, proceeded to land on a grass runway, that was in fact, closed by NOTAM.

## It's always the same advice about NOTAMs. And AIP Supplements.

I've investigated numerous occurrences where pilots had not checked NOTAMs or current AIP Supplements.

They subsequently landed at closed aerodromes, landed on closed runways, taxied on closed manoeuvring areas, used obsolete radio frequencies, and busted temporary airspace restrictions.

Some pilots will debate that if they're only doing a local or short flight they don't need to check NOTAMs or supplements.

But there are plenty of incidents and accidents I've investigated over the years that have happened during a short hop.

# // Not following the Civil Aviation Rules may mean the insurance company will not pay out. //

Visit the Airways' IFIS website to get NOTAMs and the current supplements: [ifis.airways.co.nz](http://ifis.airways.co.nz).

The website provides other flight planning tools: area and route briefings, twilight times, and links to the AIP and Metflight GA websites.

Aerodrome data is published in Volume 4 of the AIP. The entire set (Vols 1-4) is free to use and can be opened via the IFIS website or directly at [www.aip.net.nz](http://www.aip.net.nz).

Airways' IFIS mobile app is another tool you can use to easily access NOTAMs.

If you have neither internet access nor a mobile, call the National Briefing Office for all the services IFIS provides.

- NBO landline: 03 358-1509
- NBO freephone: 0800 626 756  
(free, but may not work from a prepaid mobile)

## The hidden costs

*This hypothetical situation draws together the elements of many of the investigations I've led into aircraft accidents.*

A pilot lands on the grass runway and the aircraft tips over as it rolls through a soft wet patch of ground.

The pilot and his passengers are moderately injured and the aircraft substantially damaged.

The dismayed pilot later learns the runway had been closed by NOTAM, due to dangerous runway conditions (the soft wet patches), but he had not checked.

So what are the consequences of this accident? People don't often consider the repercussions prevailing long after an accident or serious event.

There's the dollars-and-cents fallout of course: no income (without income insurance), cost of specialist

care (without medical insurance), cost of family travel if someone is hospitalised, cost of near-hospital accommodation, cost of aircraft wreckage removal and transport, and cost of aircraft repairs and storage.

Not following the Civil Aviation Rules may mean the insurance company will not pay out.

But by not checking the NOTAMs this pilot has also subjected himself and his passengers to a psychological toll not easily measurable, but nonetheless very real: distress, pain and discomfort, possibly extended recovery from injuries, possible lifelong after-effects.

There may be an impact on the pilot's medical – in a serious accident, it's possible they will never be fit enough to fly again.

And in the most extreme case there's the possibility of regulatory action.

The cost of obtaining a NOTAM or AIP Supplement is nil. The cost of an accident – possibly thousands.

So, what is your life worth? ➔

## // RULE 91.217 PREFLIGHT ACTION SAYS:

Before commencing a flight, a pilot-in-command of an aircraft must obtain and become familiar with all information concerning that flight including —

1. where practicable, the current meteorological information; and
2. the fuel requirements; and
3. the alternatives available if the planned flight cannot be completed; and
4. any known or likely traffic delays that have been notified by ATS; and
5. the status of the communication and navigation facilities intended to be used; and
6. the current conditions of the aerodrome and runway lengths at aerodromes of intended use; and
7. any take-off and landing distance data contained in the aircraft flight manual; and
8. in the case of aircraft powered by two or more engines—
  - engine inoperative procedures; and
  - one engine inoperative performance data.

# IT'S YOUR EXPOSITION

When done well, an exposition can become a powerful tool for both decision-makers and employees.

**E**very certificated organisation will have prepared an exposition as part of their initial certification process.

The exposition is a manual detailing the policies and processes that underpin the way the organisation goes about its day-to-day business.

It's more than just a regulatory requirement to demonstrate compliance with applicable Civil Aviation Rules.

It's also an essential component of building an organisation's safety culture.

An organisation can either write it themselves or they can get a contractor to write it for them.

But the exposition ultimately belongs to the operator or organisation, so it is their responsibility to ensure it is correct.

## Check before you submit

CAA Airworthiness Inspector Steve Shaw says there's nothing wrong with organisations engaging the services of a manual writer or consultant, but he has a word of warning.

“There's been a considerable amount of time and money wasted due to operators not taking responsibility to review the exposition themselves before it's submitted to the CAA,” says Steve.

“To avoid that happening organisations should work and collaborate with the manual writer during the process.”

The exposition belongs to the operator so it has to be written for their type of operation.

“Decisions about the exposition are the responsibility of the senior persons, in particular the chief executive and/or safety/quality manager, not the manual writer. This also means that the relevant senior person must be the one the CAA deals with when it comes to decisions on the exposition rather than the contracted writer.” »

## // An exposition should be written in such a way that it can be used as a training manual. //

» Steve says some of the problems stem from the belief that one size fits all.

“Expositions are specific to each individual operator. We’ve had problems with operators not checking expositions they’ve had done by a manual writer before they forward it to us. That’s where the issues arise, because it’s not the full story of how they do things.”

This is even more important in an SMS context as referred to in Part 100 *Safety Management*, which states:

*The organisation’s system for safety management must correspond to the size of the organisation, the nature and complexity of the activities undertaken by the organisation, and the hazards and associated risks inherent in the activities undertaken by the organisation.*

Steve says an exposition should be written in such a way that it can be used as a training manual.

“After reading an exposition, anyone new should have a good understanding of how the operation works.”

Steve says bigger organisations will commonly have multiple people contributing to their exposition, covering the specific area of expertise that relates to them.

He says smaller operators can keep it simple, but must involve any other organisations that provide services, to make sure the exposition covers all activities.

“If you’ve got a chief executive of a very small organisation for example, they will typically write the exposition. But if they do any contracting out, they also need to involve the maintenance provider for instance, when they write about their maintenance programmes.”

### Any changes?

The onus is on the certificate holder to maintain an up-to-date exposition and to notify the CAA when changes are made.

If you change your company name or senior persons, which are part of your certificate, and in turn your exposition – you need to notify the CAA.

Some changes may require prior acceptance by the Director.

The CAA rules relating to your type of organisation will tell you what changes require prior acceptance from the Director. Look under the heading “Changes to certificate holder’s organisation”. ➔



// CAA Airworthiness Inspector Steve Shaw (centre), explaining a point to Bernie Robertson (left), and Jim Willcox of Aviation Radio, during an audit in Wellington.



## // LICENSING REMINDER FOR THE HOLS

If you want your licence issued or amended before the Christmas/New Year holidays, please get your applications in early. The lead-up to Christmas is a very busy time for the CAA's licensing staff. The last day for the issue of licences in 2019 will be 20 December. Licences will again be issued from 13 January 2020.

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

If you're applying for a new licence, you'll need to satisfy the Director of Civil Aviation that you meet the 'fit and proper person' (FPP) requirements of the Civil Aviation Act 1990.

Obtaining the necessary information can take several weeks. As a rough guide, allow six weeks before your flight test to complete the FPP process.

If you need to renew your medical certificate, take into account the time that may take, particularly if you require a specialist examination.

The CAA will be closed from 2 pm on Tuesday 24 December 2019 until 8 am on Friday 3 January 2020.



Photo: istockphoto.com/LisaBlue

## 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

## HOW TO GET AVIATION PUBLICATIONS

### AIP New Zealand

AIP New Zealand is available free from [www.aip.net.nz](http://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](http://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](mailto: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.aviation.govt.nz](http://www.aviation.govt.nz) "Safety > Airshows".

CAA cut-off date	Aeropath cut-off date	Effective date
18 Dec 2019	25 Dec 2019	27 Feb 2020
15 Jan 2020	22 Jan 2020	26 Mar 2020
12 Feb 2020	19 Feb 2020	23 Apr 2020
11 Mar 2020	18 Mar 2020	21 May 2020

Visit [www.aviation.govt.nz/aip](http://www.aviation.govt.nz/aip) to view the AIP cut-off dates for 2019 and 2020.

## REPORT SAFETY AND SECURITY CONCERNS

Available office hours (voicemail after hours)

**0508 4 SAFETY** (0508 472 338)

[isi@caa.govt.nz](mailto: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](http://www.caa.govt.nz/report)

The Civil Aviation Act 1990 requires notification "as soon as practicable".

# ACCIDENT BRIEFS

## Aeroprakt A-22LS

Date and time:	29-Mar-2018 at 15:00
Location:	Waihi
POB:	2
Injuries:	2
Damage:	Extensive
Nature of flight:	Private other
Pilot licence:	Microlight pilot certificate
Flying hours (total):	350

While flying over the Waihi gold mine, the plastic windscreen suffered a sudden catastrophic failure and shattered. The plastic doors subsequently blew out and the aircraft yawed to the left and started losing height. The pilot's headset was blown off, therefore it was not possible to declare a MAYDAY or communicate with the passenger.

The engine operated normally throughout but even with maximum power, the pilot was unable to maintain altitude. A subsequent forced landing resulted in the nose gear collapsing and the aircraft flipping onto its roof. Both onboard suffered non life-threatening injuries.

A laboratory examination of the plastic windscreen found UV damage had occurred, resulting in embrittlement of the windscreen. The sudden catastrophic failure was likely due to disparity between the flexibility of the damaged and undamaged areas of the screen.

Pilots and maintenance providers are advised to ensure that inspections and maintenance (including cleaning) of these types of materials is done in accordance with the manufacturer's requirements.

A report is available on the CAA website.

[CAA Occurrence Ref 18/1472](#)

## Robinson R44 II

Date and time:	31-Oct-2016 at 13:09
Location:	Glenbervie Forest
POB:	2
Injuries:	2 fatal
Damage:	Destroyed
Nature of flight:	Agricultural
Pilot licence:	Commercial Pilot Licence (H)
Age:	42 yrs
Flying hours (total):	2060
Flying hours (on type):	1630

More accident briefs can be seen on the CAA website, [aviation.govt.nz](http://aviation.govt.nz), "Safety > Aircraft accident briefs". Some accidents are investigated by the Transport Accident Investigation Commission, [www.taic.org.nz](http://www.taic.org.nz).

The helicopter was conducting a pre-application survey of a forestry block. The pilot and passenger were returning from the survey when the helicopter crashed into an area of native bush. A post-impact fire occurred, extensively damaging the helicopter. Both occupants suffered fatal injuries.

An investigation was conducted by the Transport Accident Investigation Commission (TAIC), AO-2016-007. The investigation was unable to establish the cause of the accident. A report is available on the TAIC website.

[CAA Occurrence Ref 16/5811](#)

## Cessna U206G

Date and time:	04-Jan-2018 at 12:10
Location:	South Hokitika River Mouth
POB:	3
Injuries:	2 minor
Damage:	Substantial
Nature of flight:	Transport passenger A to A
Pilot licence:	Private pilot licence (A)
Age:	33 yrs
Flying hours (total):	2229
Flying hours (on type):	1926
Last 90 days:	108

During descent, the engine lost power due to insufficient fuel in the left-hand fuel tank. The pilot changed to the right-hand fuel tank which contained sufficient fuel, but the engine would not restart. The pilot carried out a forced landing onto a nearby beach. During the landing roll-out, the nose undercarriage leg collapsed in the soft sand.

The aircraft landed below the high tide mark and the incoming king tide swamped the aircraft before it could be moved further up the beach. The aircraft was subsequently written off by insurers.

The initial inspection of the aircraft at the accident site found the left-hand fuel tank was empty of fuel and the right-hand fuel tank was overflowing when the cap was removed (the aircraft was in a nose-down attitude at the time). After the aircraft had been moved to a secure location, an engineering inspection of the aircraft, including the fuel system and engine components, was carried out. Apart from a blocked forward fuel tank outlet, no faults were found.

It's suspected that either the pilot's technique in attempting to restart the engine may have caused it to flood, or a vapour lock prevented engine power from being restored.

[CAA Occurrence Ref 18/4](#)



# 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

### Stoddard-Hamilton Glastar

#### Aileron cable

**ATA chapter:**                    2700

The aileron cable swage on MS21260-S4RH was found to be wrongly swaged. It's considered possible that during manufacture the dies may have been placed on the machine in reverse. The origin of the cable could not be determined. The aircraft from which the cable came had all cables inspected but no further instances were identified or reported. A new cable was made to replace the unserviceable part.

[CAA Occurrence Ref 19/1579](#)

### Cessna 208B

#### Wheels and brakes

**Part manufacturer:**          Cleveland

**ATA chapter:**                    3240

While taxiing to the runway, the aircraft veered right and came to an abrupt halt, blocking the taxiway.

The maintenance investigation found that one of the two locating pins for the right-hand brake caliper had sheared. The caliper rotated around the remaining pin and jammed the main wheel. The caliper body, locating pins, and the piston O-rings were replaced. The system was bled and the aircraft returned to service.

[CAA Occurrence Ref 18/6350](#)

### NZ Aerospace FU24-950

#### Tappet covers

**ATA chapter:**                    7900

Two tappet covers were found to be leaking oil. The tappet covers appeared to be cracked along the fold of the horizontal line under the word 'Lycoming'.

Replacement tappet covers were fitted. This was the second defect regarding leaking tappet covers on this engine. The first occurrence was after 118 hours TTIS where four tappet covers were found to be cracked. They were replaced with older style covers.

The New Zealand Lycoming agent was contacted by CAA regarding this defect. The advice was that this is not a known issue for Lycoming. There have apparently been no other reports of cracked tappet covers. Lycoming will continue to monitor for any further reports.

[CAA Occurrence Ref 18/6798](#)

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, [aviation.govt.nz](http://aviation.govt.nz), "Aircraft > GA defect reports".

### Piper PA-32R-300

#### Main bus contactor

**Part number:**                    6041H105

**ATA chapter:**                    2450

Overhead Lake Ohau, all comms, transponder, and GPS started to flicker on and off rapidly. The avionics switch was cycled with no improvement and all circuit breakers were checked with nothing noted as unusual. All electrical power was subsequently lost. Contact with base and Queenstown Airport was made via phone and internet. Electrical power restored itself when the aircraft was manoeuvred. All electrical functions were restored, and there weren't any further issues for the remainder of the flight.

The maintenance investigation determined that the main bus contactor was the likely cause of the electrical power loss. The contactor was replaced along with the aircraft battery which had low capacity when tested.

[CAA Occurrence Ref 18/7867](#)

### Robinson R44 II

#### Distribution pipe

**ATA chapter:**                    2800

During the first preflight of the day, the pilot noted that the two fuel hose assembly adapter nuts were both able to be undone with minimal finger strength, resulting in Avgas spilling onto the firewall. Both adapter nuts had been torque striped.

The maintenance investigation found that the adapter nuts had been incorrectly torqued and had not been confirmed torqued prior to the torque stripe being applied. The adapter nuts were immediately re-torqued and torque striped.

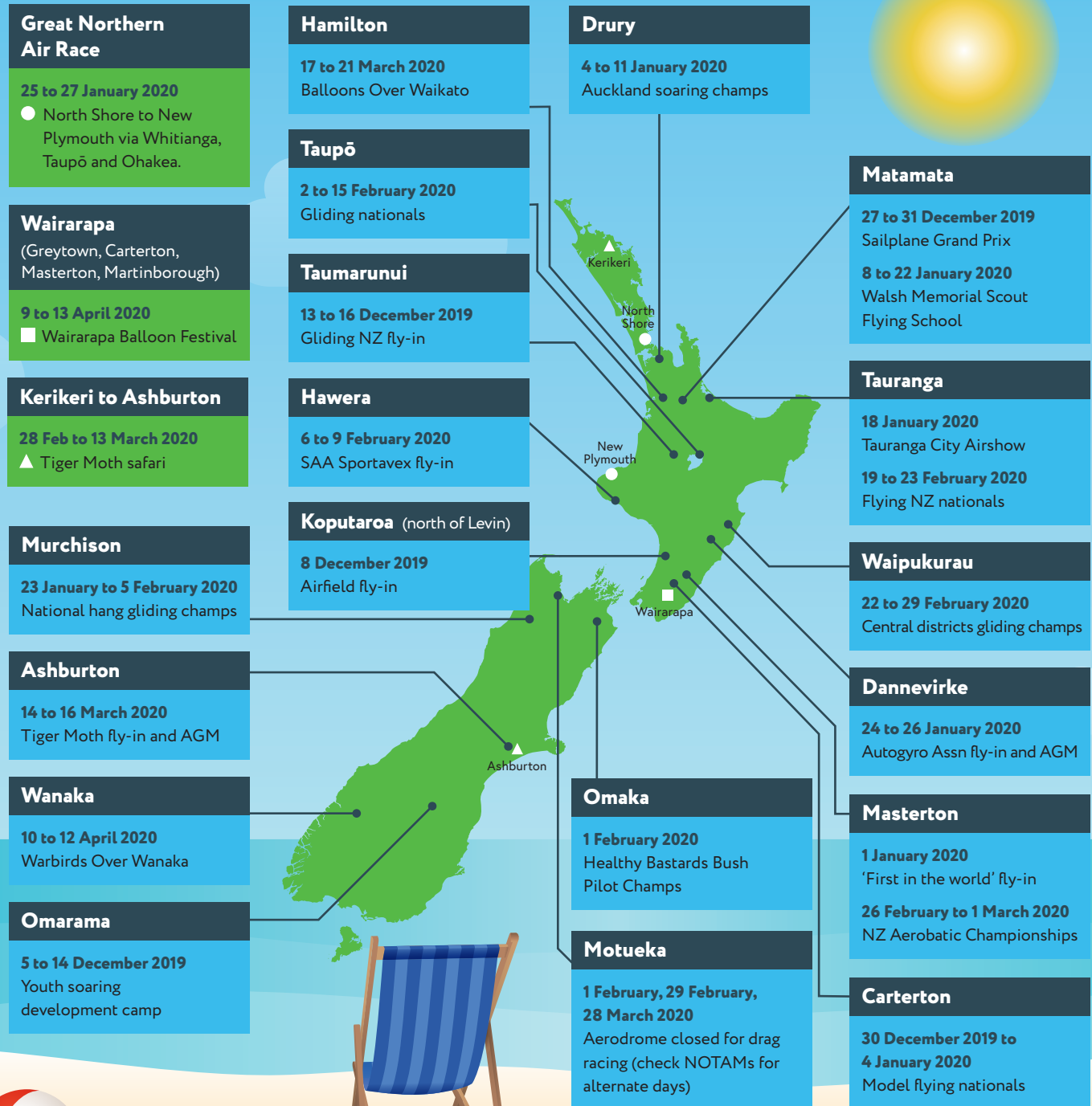
The maintenance provider held a staff safety meeting and an operational notice was raised. An additional duplicate inspection, to be carried out with any torqued item on a critical fluid carrying line, has also been introduced.

[CAA Occurrence Ref 18/7175](#)

# SUMMER TRAFFIC BUSY SPOTS

Don't inadvertently fly into an aviation event – check AIP Supplements for planned events, and check NOTAMs on the day. If you don't subscribe, you can download AIP Supplements from [www.aip.net.nz](http://www.aip.net.nz) and NOTAMs from [ifis.airways.co.nz](http://ifis.airways.co.nz).

This map shows the known flying events between December 2019 and early April 2020.



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