

vector

WORKING TOGETHER TO STAY APART

AT UNATTENDED AERODROMES



What makes
a great
aerodrome
culture?

Rules → Safety

Sharing
the risks



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// WHAT MAKES A GREAT AERODROME CULTURE?

Cover: The CAA's *Work Together, Stay Apart* campaign aims to raise awareness of safe flying at unattended aerodromes through improved lookout and following standard procedures.

Photo: iStock.com/Annie Pepper



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We'll only publish ideas and observations contributing towards safer aviation.

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A MESSAGE FROM THE DIRECTOR

// Keith Manch, Director of Civil Aviation



Since January 2016, there have been 473 reported airborne conflict events at unattended aerodromes in New Zealand.

The word ‘event’ sounds quite benign, but these events have included either two aircraft in a near collision, or avoiding action having to be taken by one or both pilots.

And, in 2019, a mid-air collision at Masterton killed two local pilots.

In 2022 there were 13 critical near-collision events reported. That means there was just one pilot action left, one final safety barrier, preventing the collision. Basically, they got *awfully* close.

We know there were other such events not reported.

CAA research has pointed to the following skills as instrumental in preventing mid-air collisions or near collisions.

Pilots:

- following Part 91 requirements, such as right-of-way rules
- using standard procedures
- using the radio effectively
- conducting an effective lookout
- making well-judged operational decisions
- having robust situational awareness.


Safety at unattended aerodromes, however, is not just the responsibility of individual pilots.

Such aerodromes are complex and diverse environments with multiple participants, who all must work together so aircraft stay apart and keep everyone safe. These diverse participants include aerodrome management, commercial organisations, volunteer flying clubs, and, yes, individual pilots.

To encourage consistent safe flying behaviour around unattended aerodromes, we’ve launched our most significant safety campaign ever, *Work Together, Stay Apart*.

As part of that campaign, this issue of *Vector* has been wholly turned over to stories about how to be safe at unattended aerodromes, reflecting the serious impact of airborne conflict events on aviation safety in New Zealand.

No matter what the different articles in this edition are about, you’ll find the same sort of messages peppered throughout – about lookout, situational awareness, radio calls, airmanship, and courtesy. That’s because it’s mainly these skills that ensure safety at unattended aerodromes.

It’s my hope that you’ll take on the safety messages in these pages, and together, we can reduce the increasingly frightening statistics around airborne conflict events at unattended aerodromes. 



WHAT MAKES A GREAT AERODROME CULTURE?



Genuine communication and excellent people skills underpin great safety at aerodromes.

For a start, really listen

When operators of aerodromes – both controlled and unattended – talk about ‘communication’, they mean a two-way exchange. They don’t mean a one-directional series of instructions from the airfield managers to aerodrome users.

Yes, the newsletters and the email bulletins are important for practical updates about what’s going on at the airfields.

But what really seems to make the difference between a great aerodrome vibe and one that’s not so great, is whether users feel their opinions are valued.

At Marlborough Aero Club – the owner of Omaka aerodrome – the CFI, Ben Morris, says his team make sure they actually listen when the airfield users offer an opinion.

// Although we compete for business, we also understand that safety must trump competition. One accident will affect us all. //



// Milford aerodrome.

“If we were to just go ahead with something without listening to them, we’d inevitably have to pick up the pieces later. But by keeping them in the loop and genuinely seeking their input, we find even if the result doesn’t go the way they would like, they still seem to be pretty good about things.

“If there’s ever a bit of friction between users, we really listen to both stories first. For instance, if the rotary operator may have started to get into the habit of using a non-standard circuit direction, we’ll ask why, instead of shoving the rules down their throat.

“I think it’s really important we give users the opportunity to say why, and then see if we can come to some sort of arrangement that works for everybody.

“That approach is great for morale, and very, very good for the culture at Omaka.”

Chief Flying Instructor at North Shore Aero Club, Daryl Gillett, says their first priority, too, is to just listen.

“Not immediately overriding or challenging their argument or their viewpoint. We really try to understand where they’re coming from.”

Taupō Airport Safety Manager, Steve Petersen, says the same thing applies at his aerodrome. “Not everyone has the same agenda, but they’re happy that everyone is listened to, which makes it always an open debate.”

And it’s not just at unattended aerodromes. At controlled Tauranga Airport, the chief executive, Ray Dumble, says the potential for conflict between the varied and many aerodrome users is “huge”.

“But at every safety meeting, each operator is listened to, and their input clearly valued and considered.

“Over the years, I’ve said, ‘Look, we’re going to do this, and we’re going to do it this way’. And the guys have said, ‘Well, actually, have you thought of this?’ And I’ve ended up, after their input, doing it a different way.”

The door is always open

Back at Omaka, Ben Morris operates an open-door policy.

“I want everyone to feel like they can come and talk to me about things. If I can’t speak to them right then, I make the time to follow up as soon as I can. It takes a big effort sometimes for people to come to see me, especially if they’re self-reporting. I don’t want them to go away again thinking what they had to say was unimportant.

“I think being approachable and responsive is hugely important.” »

» The open door is for questions too.

“We don’t want pilots to feel like they have to know everything from the start. We want them to be unafraid to ask questions of me and the other instructors,” says Ben.

Safety Manager at Tauranga, Pam Walters, agrees it’s important that users feel comfortable enough to say, ‘Hey, can we catch up over a coffee and talk about this thing?’

“That’s way better than bottling it up until the next scheduled safety meeting, and in the meantime, letting whatever the problem is, explode.”

Building relationships

How harmonious and how safe the culture is seems directly connected to the quality of the relationships between users, and between aerodrome management and users.

Taupō Airport General Manager, Wayne Wootton, says it’s good communication, once again, that underpins good relationships.

“This is my fourth aerodrome and the comms here are very good.

“Everybody has their say around the table and every comment is regarded as valid.

“Doing this well, I think you start to earn their trust and their respect, and then you begin to work together as a group, through issues that crop up.”

For Tauranga’s Pam Walters, building good relationships starts with something as straightforward as doing a ‘perimeter walk’.

“Occasionally, I walk past all the operators’ hangars, dropping in to say ‘hi’ and catching up with whatever is going on with them.

// Every Friday night, we invite anyone on the airfield to come to us for a social, and a chat about the week, and about what’s happening in flying. //

“I believe it’s the most valuable talk you can have.”

Daryl Gillett says better cooperation, and therefore safer results, come when you know well who you’re dealing with.

“Everyone would realise that if you approach an individual or an operator, and you’re pretty direct and abrasive, you’re probably not going to get very good results.

“But we know that, at North Shore, there are some operators who do appreciate a fairly direct approach – they want to get straight to the point, and can’t be bothered with niceties.

“Tim (Marshall, the club’s safety manager) has been around a long time and knows which approach is best with which user.”

Daryl Hone, the president of the Tauranga Aero Club, says the club does its bit to build ‘familial ties’ among the various parties at the aerodrome.

“Every Friday night, we invite anyone on the airfield to come to us for a social, and a chat about the week, and about what’s happening in flying.

“We encourage new people to attend, to become part of the Tauranga Airport ‘family’. We welcome them to the club and they can see we have – as does the whole airport – a really positive vibe. They, in turn, buy into, as ‘the way things are round here’.”

The importance of role models

Taupō Operations Manager Kim Gard says the safety team don’t want to be perceived as ‘the aerodrome police’.

“I don’t want to develop this culture where they come to us every time they’re unhappy about something.

“Sure, we need to know about it, but we don’t need to be involved in every minor discussion.

“They know how we operate in terms of resolving issues around safety, and I like to think they model their approach on that.”

‘Modelling’ how issues, even conflict, can be negotiated for the best safety results is practised also at Tauranga.

Tauranga Aero Club’s Daryl Hone says that, traditionally, fixed-wing club pilots and rotary operations don’t necessarily see eye to eye – their needs being very different.

“But we have a very, very busy aero club in a neighbourly relationship with a very, very busy helicopter operation.

“That’s because we talk to each other, and if something’s not working for either organisation, we can usually sort it out between us.”



Photo: iStock.com/Wirestock

Those types of relationships mean most issues are resolved well before any of the quarterly scheduled meetings.

“That’s because Harry’s gone and talked to Jim, for example, about how he wants to change his helicopter operation,” says Tauranga Airport’s Chief Executive Ray Dumble. “Or he’s sought Jim’s opinion about changing the low-flying area procedures.”

All in this together

James Stokes is the managing director of Glenorchy Air, and chairman of QMUG – the Queenstown and Milford Users Group – the longest-operating users’ group in the country.

“At its core, QMUG is a safety promotion organisation,” James says.

“Although we compete for business, we also understand that safety must trump competition.

“One accident will affect us all.

“In Milford, fixed-wing and rotary aircraft are flying in an exceptionally confined environment. At Queenstown, the fixed-wing and helicopter operators are all sort of mixed in together, which is quite unique compared with other aerodromes. The mountainous terrain around both aerodromes is also a permanent added risk to safe operations.

“So in such challenging environments, I think everybody ‘gets’ that working together – even when there’s friction between different users – is essential for a safe and efficient operation.”

Probably because of the challenging environment that everyone in QMUG operates in, the group is very active between scheduled safety meetings.

“Our safety officers proactively communicate with the fixed-wing and helicopter operators. And we have a really good

culture of our chief pilots, training managers, and safety managers being able to talk really, really openly as well.

“Sometimes we’ll have meetings among senior people when those high-level issues need to be discussed.”

Daryl Gillett agrees that having as safe a culture as possible, is about having everyone ‘on the same page’.

“We make it very clear that our safety team is ultimately there for the users’ benefit and their safety.

“We want them to understand that the approach, or whatever actions we’re going to take, are designed only to keep them safe. ‘Let’s go on a bit of a journey together here, to work out what’s best moving forward’ sort of thing.”

Kim Gard, at Taupō, agrees. “With the implementation of safety management systems, it became apparent at Taupō Airport that we were all in this together, with a common goal to provide a safe and compliant operating environment.

“Even when it gets a bit heated between parties, really our goal is all the same – operating in a safe environment.”

A just culture and reporting

Daryl Gillett says that when the club has to talk to pilots who fly outside the rules, it takes a learning approach.

“The more they understand the reason for your advice – and that it’s about educating them, not being punitive – the more likely they are to accept it.”

But Daryl urges pilots to understand that filing a CAO05 is sometimes part of that process.

“It’s really important that, where the threshold is met, occurrences are reported to the CAA. In this way, the CAA has the data needed to justify investment in safety initiatives.

“Filing a CAO05 is not a disciplinary action.” »

// Being honest, and always providing a response, even if it is not the answer tenants and operators want, is better than not responding at all. //

» In such situations at Omaka, Ben Morris maintains the 'let them have their say' approach.

"People tend to be more open about reporting when they know we're not going to jump down their throat.

"Even if somebody's done something a bit outside the rules or our operating procedures, and we've got to chase them up about that, we give them the opportunity to tell their side of the story.

"Because quite often, people are not deliberately uncaring about doing something wrong. So it's about educating, rather than accusing.

"If we give them the opportunity to speak, and to ask us questions about what they should have done, they're a lot more accommodating and a lot more reasonable when we try to reach a bit of an agreement with them about their flying, or a plan to improve it. They're also more willing to admit fault."

Daryl Gillett believes the occurrence reporting rate at North Shore is pretty good.

"I have no doubt there are things happening that people try to hide, but as long as we have that 'bring everyone on the safety education journey with us' attitude, and make sure they understand that's what it's all about, I think we'll sustain, maybe even improve, our already good reporting rate."

At Taupō, Steve Petersen also uses the educational approach, although he still encourages pilots who've breached a rule or been involved in an incident to file their own 005 report.

"They do need to take ownership of what they've done, but beyond that, our approach is not to blame, but to try to educate."

Why a user group?

James Stokes of QMUG says an energetic user group allows participants to have real influence over what happens at their home aerodrome.

"You can argue your point more effectively, but if you're not involved and then something happens that you don't like, you don't have much sway at all.

"When we had issues around the integration effects in Queenstown, our chief pilots and senior persons from both fixed and rotary wing met with Airways to develop new operating procedures. That took weekly meetings over a couple of months.

"I think there was a fair amount of anxiety about whether or not the integration would slow down aerodrome operations, but I think by working together, we were actually able to make it work pretty well."

Kim Gard at Taupō recounts a story about how a good safety group can work for everyone's benefit, and for safety.

"Some of the operators had been talking about the need for a new FATO (helicopter final approach and take-off area).

"So we got all the airfield rotary operators together. Everyone got to voice their opinion about what the issues were and what a solution might look like.

"But in listening to what each person had to say, we all realised that the FATO wasn't the main consideration – there were much easier and more practical solutions to address the perceived issues."

Kim says building and maintaining a healthy and robust aerodrome culture does not happen overnight.

"You have to build and strengthen relationships with your stakeholders. You have to earn their respect and take them with you to that realisation that they need to work as an invested group, to find the best outcome to any situation."

Kim says key to this are availability, transparency, and delivery.

"Being honest, and always providing a response, even if it is not the answer tenants and operators want, is better than not responding at all.

"This earns respect between all the parties." ➤

// MORE INFORMATION

aviation.govt.nz/rules > advisory circulars > AC139-17 Aerodrome User Groups.

SKILL, COURTESY, AND SOUND DECISIONS

What exactly is ‘airmanship’? And why is it so important to exercise airmanship to avoid close calls at unattended aerodromes?

Airmanship is a broad term referring to:

- consistently using good judgement
- appropriate pilot attitude
- well-developed flying skills.

Good judgement

In aviation, using good judgement is making the best (= safe) decision you can, based on all that information you’ve gathered about your flight.

You really need to know yourself – particularly your limitations – your aircraft, your environment, your team (if that applies), and general risk factors such as available daylight.

“You need to know all of this to develop really robust situational awareness around unattended aerodromes,” says Carlton Campbell, CAA Aviation Safety Advisor and GA Flight Examiner.

“Great lookout and great decision-making are also integral to good airmanship – boosting a pilot’s safety and that of those around them.”

Chief Flying Instructor at Wanganui Aero Club, Jonathan Mauchline, says consistently exercising good judgement gets everyone home safely at the end of the day.

“Everyone should want that for themselves and others. Why on earth would you settle for less?”

Appropriate pilot attitude

Aaron Pearce, formerly CFI at South Canterbury Aero Club, and currently working on the CAA’s *Work Together, Stay Apart* campaign, would write ‘courtesy’ at the top of the list of attributes making a pilot’s attitude ‘appropriate’.

“Courtesy is the password to safety,” he says.

“Yield, don’t push. Why are you in such a hurry to get on the ground? Flying is fun and enjoyable, so if you have to make way for someone, enjoy the extra time in the air.”

Jonathan Mauchline says airmanship involves a strong focus on how your actions affect other pilots and their aircraft.

This focus becomes an automatic way of thinking around unattended aerodromes.

“It’s easy to forget, when seeing targets on a screen, that they represent people, not just planes,” says Jonathan.

“Make sure you treat other aircraft in the sky, as you would their pilots in the aero club bar at the end of the day.”

Jonathan says that includes things like *thinking* about what you’re *saying*.

“For instance, quite regularly I hear IFR aircraft joining at an unattended aerodrome, and calling using IFR terminology and IFR waypoints.

“They’re seemingly oblivious that their entire call means nothing to the average VFR pilot trying to work out where they are.

“The IFR pilot has lost focus on how their actions (in this case, radio calls) affect other pilots.

“The onus isn’t just on the IFR pilot, however. That GA pilot listening should feel like it’s okay to call up on the radio to admit they don’t understand. Rather than stay quiet, a quick call can easily clarify the situation – for everyone’s benefit. That, also, is good airmanship.”

Exercising well-developed skills

The efficiency and operational safety flowing from good airmanship also involves being able to operate an aircraft competently, and with precision, both on the ground and in the air.

Jonathan says most close calls, whether they’re near misses involving traffic, or just a landing that ‘went wrong’, involve pilot error.

“Normally this pilot error could be attributed to a lapse in good airmanship when an earlier decision was being made, for instance, poor fuel management.

“Thinking ahead and making an early good decision provides that first slice of cheese blocking a potential accident.”¹

Carlton Campbell agrees, saying that evidence indicates runway excursions, overruns, and proximity/near miss occurrences are often linked to poor airmanship.

“Exercising good airmanship at uncontrolled aerodromes requires a cool head,” he says.

“Slow down, don’t rush, think ahead, and anticipate rather than react, so you consciously avoid any potential collision.” ➔

1 Swiss Cheese Model of Accident Causation, Professor James Reason.

RULES → SAFETY

Rule breaches are among the most common factors in mid-air collisions or near collisions.

There are four fundamental rules underpinning safe flying around unattended aerodromes:

- 91.127 *Use of aerodromes*
- 91.223 *Operating on and in the vicinity of an aerodrome*
- 91.227 *Operating near other aircraft*
- 91.229 *Right-of-way rules*

“These four rules really offer an unattended aerodrome ‘road code,’” says Aaron Pearce, of the CAA’s *Work Together, Stay Apart* campaign.

“The rules aren’t there to ruin our ‘fun’ or limit what we can do. They’re there so we all know how the traffic will flow, how each of us will behave, and what each of us will do.”

“These four rules all have one commonality – avoiding conflict,” says GAA Aviation Safety Advisor Carlton Campbell.

“It’s significant that in each of the three most recent mid-air collisions in New Zealand, at least one of those four rules was breached.”

The Transport Accident Investigation Commission (TAIC) has noted that, of the 12 mid-air accidents in New Zealand from 1988 to 2008 – in which 20 people died – half were at, or in the vicinity of, unattended aerodromes.¹

It should be noted that the pilots involved in New Zealand’s three most recent mid-air collisions were all at their home aerodromes.

“I would say that if every pilot at an unattended aerodrome – including at their home aerodrome – flew as those four rules intended, and coupled that with a reasonable level of situational awareness, there would be no mid-air accidents and no close calls,” says Aaron.

Rule 91.127 *Use of aerodromes*

This basically says we must operate in accordance with the aerodrome operator’s procedures, including the published circuit direction. Why? It’s probably kind of obvious, but here it is – it makes your aircraft’s flight path predictable to other aircraft, as theirs will be to you. No nasty surprises.

Rule 91.223 *Operating on and in the vicinity of an aerodrome*

Rule 91.223 mandates the requirement to adhere to the published and established circuit (and, if transiting, to avoid conflict with circuit traffic).

During its investigation into the 2019 mid-air collision in Masterton, TAIC found that one of the pilots was joining a non-standard right base for a left circuit runway.

The TAIC report noted, “The non-standard join was at variance with civil aviation rules, but had become an accepted practice at the aerodrome”.

“Standardised procedures ensure that we’re all doing the same thing,” says Aaron. “They make us predictable to students, itinerant pilots, and pilots who don’t fly very often. They aid traffic flow and help with sequencing. They’re also our go-to in an emergency.

¹ The other half were either planned close proximity flights, like formation flights, or company aircraft working together.

// Lookout is the fundamental principle of safe flying at all unattended aerodromes. //

“And in New Zealand, we have NORDO (without radio) aircraft, so standard procedures are the only way to separate, and spot the aircraft that aren’t transmitting on the radio.”

Rule 91.223 also repeatedly states the requirement to observe other aerodrome traffic for the purpose of avoiding a collision.

Research² from the FAA found that “inadequate visual lookout – failure to see and avoid” – was the most common cause of mid-air accidents.

Interviews between the FAA and 658 pilots who survived a mid-air collision found that 88 percent of them never saw the other aircraft before they collided. The remainder saw the other aircraft, but too late to initiate avoiding action.

The TAIC investigation of the 2008 Paraparaumu collision found that, “...the three pilots had probably been concentrating on flying their aircraft and planned manoeuvres to the detriment of listening and *maintaining an effective lookout*”. (Vector emphasis)

“Lookout is the fundamental principle of safe flying at all unattended aerodromes,” says CAA Flight Examiner Katrina Witney.

“When all else fails – poor, or no, radio calls, non-standard procedures, or misjudged reliance on tech – an excellent lookout by even one pilot will literally save lives.”

// REMEMBER...

This article is a summary of the key points in these rules for avoiding conflicts at or around unattended aerodromes. It doesn't cover everything that's in the rules. For maximum safety, take time to read and truly understand all these rules, and apply them every time you fly.

Rule 91.227 Operating near other aircraft

This rule says, “A pilot must not operate an aircraft ... so close to another aircraft as to create a collision hazard”.

“But we do see pilots who ‘push’,” says Aaron Pearce.

“Why continue in the direction of, or at a high rate of speed towards, unsighted known traffic? Not only are you not avoiding conflict, you’re actually, clearly, creating it.

“No pilot has the right to unheedingly reduce another’s safety margins.

“Fly defensively – that doesn’t mean aggressively.

It means maintaining a safety bubble around ourselves, and not rushing or encroaching on each others’ bubbles.”

Rule 91.229 Right-of-way rules

“If an aircraft has right-of-way, the responsibility of spacing in the circuit is on the following aircraft,” says Carlton Campbell.

“Give each other a little breathing room. You don’t know what’s going on in the cockpit ahead of you. Maybe it’s someone’s first flight after a break, or maybe it’s a student whose lesson hasn’t gone as well as they expected.

“We all need to be patient, stick to the standard, and realise we’re all human, and all make mistakes, especially early in our flying.

“You cannot overtake in the circuit – although this doesn’t prevent ‘number one’ yielding their position to the following aircraft if circumstances allow.”


Rule 91.229 also says that, “A pilot who has the right-of-way must maintain heading and speed, and is not relieved from the responsibility of taking such action, including collision-avoidance manoeuvres ... that will best avert collision”.

“It’s been seen and reported that some pilots have tried to take advantage of the right-of-way rules,” says CAA Flight Examiner Brendon Bourne.

“They race onto a circuit leg, or from the non-traffic side, to take the number one position, again causing potential conflict.

“But what have you achieved in getting so close to conflict? A few seconds off your journey? Getting to be ‘number one’? Is it really worth it?

“Everyone wants to get home safely, and because we share unattended airspace, that means looking after each other.” ➔



RADIO
CALLS –
**MAKE
THEM
COUNT**

Some tips from the
Plane Talking 2023
seminars.

When pilots – of all stripes – are asked by *Vector* what the biggest issue is in flying around unattended aerodromes, the answer is almost always ‘radio calls’.

Standard radiotelephony is a fundamental skill in flying. How critical it is to be clear, concise, consistent, and correct is drummed into us all during training, and it’s one of the basic skills tested during a PPL flight test.

And yet, as some of us build hours and start to feel confident (over-confident?) in our flying, the way we make a call wanders well away from what is helpful to other pilots, and safe for everyone.

That’s why the *Work Together, Stay Apart* seminar *Plane Talking 2023* has been touring the country, reminding us all of why the need to be clear, concise, consistent and correct, is so critical to everyone’s safety.

Here’s a flavour of what the three seminar presenters say.

CAA Aviation Safety Advisor Carlton Campbell says that it’s important for us all to realise that we’re part of a ‘system’ when we make a call.

“Listen, *really* listen to what other pilots are saying about where they are and what their intentions are, and only then decide whether it’s necessary to make a call as well, and if so, what information would be helpful,” he says.

Reports from the Transport Accident Investigation Commission on the mid-air collisions at Paraparumu in 2008, Feilding in 2010, and Masterton in 2019 noted that while appropriate radio calls were made by all the parties, it was apparent none of them acted on the advice given in those calls.

A near collision – 300ft vertically and 1000m horizontally – occurred at a ‘non-towered’ Queensland airport in 2021, between two medium-sized passenger aircraft.

The Australian Transport Safety Bureau found the near miss was due, in part, to the crew of one aircraft failing to effectively monitor the radio, having therefore an incorrect mental model of the other aircraft’s position, and not perceiving it as a threat.¹

“It’s important to actively listen to what you’re being told. Don’t treat radio transmissions like elevator music,” says CAA Standards Chief Advisor, Marc Brogan.

“And don’t continue to talk to passengers/students while a radio call is being transmitted.”

Aaron Pearce, of the *Work Together, Stay Apart* campaign, says the use of local and informal reporting points confuses itinerant pilots, and international students.

“The first thing they do, when they hear ‘overhead Dave’s garage’, is start scrolling through their device trying to find where the heck you are, when you’re ‘overhead Dave’s garage’. That means a long time head down.”

“Clearly, this kind of position report is fairly mystifying to anyone but the most local pilot,” says Marc.

“Use the correct VRP, or if unsure of that, or there isn’t an appropriate one, give your position relative to the closest airfield or town.”

Carlton Campbell recounts a situation where a gaggle of aircraft on a fly-in through Mackenzie Country, all separately reported they were “overhead the pylon”.

“Given that this area is cluttered with hundreds, possibly thousands, of pylons, this position report is pretty hopeless,” he says.

Radio ‘clutter’ is another issue for many pilots flying at unattended aerodromes.

“It’s part of actively listening,” says Aaron, “to think about whether you really do need to push ‘transmit’. Some pilots do it automatically and unthinkingly, only adding to the confusion on the frequency.

“Transmit only when necessary.”

Some more tips from the presenters

- If you cannot remember the correct phraseology in the moment, revert to plain language. The important thing is that you make clear where you are, at what height, and what you’re planning to do.
- Before departure, tune in the radio frequency of each area/service you’re going to use, in a logical order. Then it’s a quick change from one to the next.
- Pause when you’ve made that frequency change, to listen for any activity on that frequency, so you don’t interrupt an already-occurring exchange.
- When changing frequency, squelch your radio to check intercom and volume settings. 📶

// MORE INFORMATION

Go to aviation.govt.nz/education to download a digital copy, or order a printed copy, of the *Plane talking* GAP booklet.

¹ *Safety Watch*, “Reducing the collision risk around non-towered airports”, ATSB.

KNOW YOUR NEIGHBOUR

From skydiving and flight training to regular passenger transport, there's a huge variety of activities at unattended aerodromes.

Vector Online asked various users of unattended aerodromes, "What do you want your airspace neighbours to know about the way you fly?"

For their answers, listen to our audio story, *Know your neighbour*.

Vector Online also asked, "In what way would you like your airspace neighbours to improve the way they operate around unattended aerodromes?" Surprise, surprise, it was, almost universally, better radio calls.

Fewer unnecessary calls, more necessary calls, shorter calls, clearer calls, slower delivery, more courtesy if asked to 'say again', more courtesy on the frequency generally, and having a "good listen out".

Itinerant pilots want locals to use proper visual reporting points to give position reports. 'Overhead water tower' type reports has them trying to find the 'Water Tower' VRP on the charts or their device. Head down.

Pilots near flight training areas want international students to relax a little when making their radio calls – rather than nervously rushing through them.

Students would like more understanding and tolerance from experienced pilots, and would very much like to not be publicly berated over the frequency.

And locals would appreciate itinerant pilots doing their flight planning homework before departing, so they know what frequency they should be on, and what to expect in terms of other traffic and their calls. 🎧

// NOW GO TO...



...aviation.govt.nz/vector-online to listen to *Know your neighbour* or scan the QR code.



SHARING

// By Joe Hall, CAA Chief Advisor HSWA

Organisations need to work together to reduce the risk of airborne conflict at unattended aerodromes.

Airborne conflict at unattended aerodromes is a risk shared by all flying in common airspace – pilots, businesses, and any others, including passengers.

Everyone who participates in that airspace has a duty under the Health and Safety at Work Act 2015 (HSWA) to manage this shared risk in some way.

Duty holders include aerodrome owners and other businesses, as well as both commercial and private pilots.

HSWA emphasises a performance-based approach to health and safety, placing responsibility on 'Person Conducting a Business or Undertaking' (PCBU) to identify, assess, and manage risks. 'PCBU', in this sense, largely refers to an organisation, although it can mean individuals who're self-employed. These HSWA requirements are similar to, and consistent with, Section 12 of the Civil Aviation Act 1990, which requires certificated operators to identify and manage risk.

HSWA doesn't end there. Sections 45 and 46 of the Act place requirements on 'workers' and 'other persons' who work for the PCBU, and/or use the premises operated by the PCBU of the aerodrome.

THE RISKS

HSWA duties of all pilots

Under Sections 45 and/or 46, all pilots – private, commercial, or recreational – have duties that include them taking ‘reasonable care’ for their own safety, and the safety of others who might be affected by any actions they take.

There’s a correlation here with Section 13 of the Civil Aviation Act 1990, which states the primary duty of the pilot in command is to ensure the safe operation of the aircraft, and the safety of the passengers and crew.

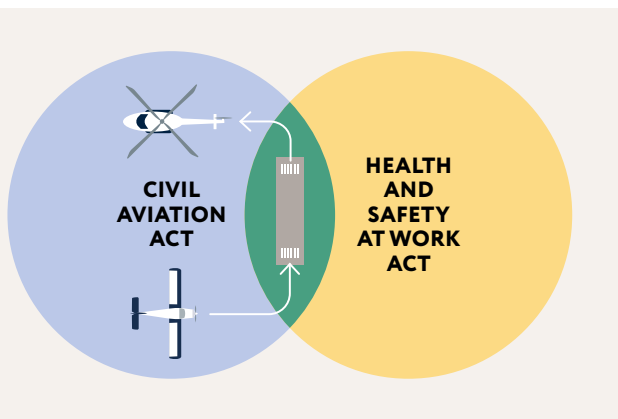
Under HSWA, pilots also have a duty to comply with any reasonable instruction, policy, or procedure provided to them by the PCBU managing or controlling an aerodrome.

This HSWA requirement is analogous to the CAA requirements under rule 91.223 (see page 10).

So isn’t this a double up?

In a way yes, but it’s anticipated by HSWA, which recognises ‘other enactments’ in Section 35. To make a long story short, the requirements of HSWA and the Civil Aviation Act overlap and reinforce each other, as represented in the diagram below.

So if you enter an aerodrome, for work or recreation, on foot or by air, one way or another you are required to abide by the instructions of the PCBU/certificated organisation.



So what does this mean?

Actions all pilots can take to reduce the potential impact of their activities on others, whether on the ground or in the air, include:

- exercising increased caution near aerodromes and airports, or when landing, taxiing, and taking off
- conducting effective lookouts and scans while flying
- guaranteeing radio calls are clear and concise; and
- meeting any requirements outlined in the AIP, civil aviation rules, or other policies and procedures.

// HSWA DUTIES/LEGISLATION RELATED TO THIS ARTICLE

- S22** Understanding what is reasonably practicable to do after taking specific factors into consideration
- S36** Primary duty of care by PCBUs to workers and others
- S37** Duties of the PCBU that controls a workplace (ie. councils)
- S34** The overlapping duties that PCBUs share in relation to an activity
- S30** Duties of the PCBU to manage risks
- S45** Duties attached to workers
- S46** Duties attached to other persons (private and recreational pilots, etc)

Safety in and around aerodromes

Under the Civil Aviation Act 1990, certificated operators must identify and manage risks within their own organisational structures as part of their safety management systems. This is no different under HSWA, with PCBUs having duties to manage risks to workers and others.

As PCBUs, aerodrome operators and owners have a duty to ensure the safety of individuals using their facilities. »

» This includes understanding the role they play in managing the risk of airborne conflict.

For a PCBU managing or controlling an aerodrome, to effectively fulfil their duty, they must carry out regular and ongoing assessments identifying hazards, and their associated risks.

Other duties for the aerodrome PCBU include making sure there's adequate signage, properly maintaining runways and taxiways, and making sure any other facilities being used are in good order.

The aerodrome PCBU should think broadly about, and, where possible, maintain oversight of, what's happening on their runways, taxiways, and in the circuit. They should set up and maintain a system encouraging open and transparent reporting by all aerodrome users.

User groups are strongly recommended

PCBUs managing or controlling an aerodrome should also put a user group in place. For further information on good practice of user groups, read AC139-17 *Aerodrome User Groups*.

All parties using that aerodrome should regularly attend user group meetings. They should discuss airborne conflict and other risks associated with the aerodrome, and collectively make decisions on what actions they'll take to manage those risks. These agreed actions are known as 'controls'.

All parties should regularly review their agreed controls to make sure they remain effective. Risks change often, new risks emerge, and some controls may introduce their own risks. Risk management is a continuous process – never a 'one-and-done' meeting.

Real people, real risks

It's important that PCBUs, and others, consider the link between human factors and safety when deciding on effective risk management strategies.

User groups should consider, alongside the potential for physical harm to occur, factors such as fatigue, stress, and communication breakdowns when evaluating and addressing potential risks.

Manage risks within your sphere of influence and control

When two or more PCBUs are working at the same location, or in the same airspace, they must work together to fulfil their individual duties.

Where those duties overlap, each operator must do what they can, within *their* influence and control,

// It's important that PCBUs, and others, consider the link between human factors and safety when deciding on effective risk management strategies. //

to manage the risks. Doing nothing is not an option, and leaving the 'doing' to somebody else does not absolve an organisation of its duty.


Only by working together, can gaps in a system be identified, and PCBUs and others reach a common understanding of their and each other's roles, responsibilities, and actions.

This results in better understanding of problems, which will lead to better solutions.

Consult, coordinate, cooperate

While there are aircraft in the sky, there exists the potential for collision.

While it's almost impossible to eliminate the risk of airborne conflict, PCBUs and others can work together to effectively manage risk arising from the shared activity of flying.

By consulting, cooperating, and coordinating the activity of flying together, they can reduce the opportunities for airborne conflict. 

// FURTHER INFORMATION

For more information on overlapping duties and shared risk under HSWA legislation, see WorkSafe New Zealand's website: [worksafe.govt.nz](https://www.worksafe.govt.nz) > managing health and safety > getting started > understanding the law > overlapping duties.

For more information on making accurate radio calls, see the Good Aviation Practice booklet *Plane talking* on the CAA's website: [aviation.govt.nz/education](https://www.aviation.govt.nz/education) > good aviation practice (GAP) booklets > pilot practice.

There's also an accompanying video to the *Plane talking* GAP booklet. See [aviation.govt.nz/education](https://www.aviation.govt.nz/education) > safety education videos.

THE LIMITATIONS OF ADS-B

We know, we know. The CAA has spent the last several years encouraging you to get ADS-B. But we've also spent the last several years saying it should never be your only source of 'lookout'.



Everybody knows the benefits of ADS-B. Or you should do, by now.

You should also know by now that ADS-B, despite its situational awareness game-changing qualities, has its limitations.

You can never know, for instance, which of the aircraft sharing your airspace actually has ADS-B installed.

You can never know whether the ADS-B tech they might have installed is actually switched on or functioning properly.

In Ketchikan, Canada, in 2019, two aircraft collided after the ADS-B in one aircraft was not broadcasting pressure altitude, which it needed to do to provide an alert to the kit in the second aircraft. Five died and nine were seriously injured.

ADS-B in your aircraft, therefore, does not guarantee collision-free airspace. In the *Vector* article "I fly outside controlled airspace" (Spring 2021) we reported that a near miss occurred in the Bay of Plenty between a fully equipped (IN and OUT¹) aircraft and a non-equipped aircraft.

"The ADS-B pilot heard no radio call (it was in an area where a frequency change was due) and, of course, no OUT transmission showed up on the IN display.

"Fortunately, through sheer luck, the aircraft avoided each other. But it could have had a catastrophically different outcome."

In the *Vector* article "Advice from ADS-B equipped pilots" (Winter 2020), North Shore pilot Steven Perreau said of his new kit, "You can never assume that a lack of traffic on the display means there's actually no traffic around. You'd be a mug to use it 100 percent instead of the mark 1 eyeball".

Pilots also need to be aware of the limitations of ADS-B IN equipment that connects to the device running your favourite electronic flight bag app.

With portable ADS-B IN receivers that sit in your cockpit, a line of sight to the aircraft transmitting the OUT data is required. An obstruction such as the aircraft body itself can block these transmissions from being received.

Otago Aero Club CFI Joe Calder says it's also important to make sure the device is up-to-date because, if it's not, the ADS-B IN can work incorrectly.

"ADS-B IN is a great tool, but there'll always be some non-ADS-B aircraft flying. Keeping those eyes outside the window, maintaining a thorough lookout, is most important."

You also need to be aware the display device you're using for your ADS-B IN receiver may be showing incorrect altitude readings.


ADS-B OUT data is set to a standard pressure setting of 1013.25 hPa.

This could potentially mean that an aircraft registering 100ft below, could be 100ft above.

Either way, treat altitude information on visual displays with caution.

You're also not necessarily going to see the aircraft detected on your display in exactly the location expected when doing your visual lookout, as there can be some lag.

As South Island pilot Ian Sinclair said in the previously-mentioned *Vector* article, "Even though it has quite good eyesight, ADS-B IN is still only one tool in the awareness shed.

"Lookout, good radio work, and predictable flight patterns all need to be maintained." 

¹ ADS-B OUT allows an aircraft to broadcast its position to other aircraft (who have ADS-B IN) and to ground receivers (like Airways). ADS-B IN allows an aircraft to receive those broadcasts.



LOOKING OUT 'CONSCIOUSLY'

A carelessly quick 180-degree head swivel is not going to save you from that aircraft approaching from behind the wing.

CAA Aviation Safety Advisor Carlton Campbell, says the three most important things a VFR pilot can master are lookout, lookout, and lookout.

“Although other skills, like great radiotelephony, are really important,” he says, “nothing, *nothing*, replaces the mark 1 eyeball to physically identify the risks beyond the windshield.”

Involve the body

An effective lookout requires more than just sleepily gazing at what might be directly in front. Rarely does an aircraft come in close proximity with another from directly in front. The danger comes more often from underneath, or from the sides.

“That means getting active,” says CAA Standards Chief Advisor, Marc Brogan. “Move your whole torso around. Lean forward – particularly if you’re turning.

“Be awake to the design features of your aircraft and how they can damage your scan.”

A ‘key lesson’ from the Transport Accident Investigation Commission’s examination of the Feilding mid-air collision in 2010 was that, “Pilots need to ... ensure that their scans cater for any blind spots in the cockpit, either by moving their heads to look around any obstructions or by manoeuvring their aircraft”.

The low wings of a Piper Warrior are going to block your view of aircraft flying below, but possibly toward, you.

In high-wing aircraft, there’s a considerable blind spot created by the wing during a turn. To partially overcome this problem, again, you should lean forward to look through the side of the windscreen, moving both your head and body for a better view.

// A passive and quick sweep of your head from side to side is not 'looking out'. //

When descending in low-wing aircraft, make shallow turns to compensate for your blind spots so that lower flying traffic can be seen. On descent and climb-out, make gentle 'S' turns to make sure no one is in the way.

"You need to be dynamic in your scan to be assured of identifying where all other aircraft are, that are sharing the airspace," says Marc.

Involvement of the brain

The brain needs to be as engaged as the body.

"You need to be looking out *for* something," says CAA Flight Examiner Guy Brooking. "A passive and quick sweep of your head from side to side is not 'looking out'. The brain doesn't really register anything meaningful outside the cockpit window.

"You have to look in one sector, focus on that sector, then look at another sector, focus on that, and so on.

"A scan, properly done, should be in 20 degree blocks with about two seconds spent on each block, and take about 18 to 20 seconds.

"The lookout must be built into all activity needed during a flight, and must be continuous, not just when you are about to enter a turn.

"Instructors need to drive this home to their students, and one of the best ways to do this, is to make sure they are modelling a good lookout at all times, not just when they are actively teaching something," says Guy.

Tech is great, but...

"There's no doubt in-cockpit tech is a huge boon to aviation safety, but it should be treated only as a back-up to a physical lookout. It should never replace it," says GA Flight Examiner, Mark Woodhouse.

"There are aircraft which, for instance, don't have ADS-B OUT, or the other aircraft might have it, but it's switched off. So don't assume that all other aircraft in your airspace will ping out an identifier.

"And the more you rely on cockpit tech for your situational awareness, the more degraded your lookout skills become."

Lookout – on the ground

There's no doubt that the quality of lookout can be affected by workload, or insufficient sleep the night before the flight, or a number of other seemingly unrelated factors.

FAA Advisory Circular AC90-48E *Pilots' role in collision avoidance* says, "Proper scanning requires the constant sharing of attention with other piloting tasks, thus it is easily degraded by psychophysiological conditions such as fatigue, boredom, illness, anxiety, or preoccupation".

To make sure your lookout has to be shared with as few other tasks as possible, prepare as much as you can before the flight.

For instance, clean your windscreen (for the very practical reason that you won't mistake an approaching aircraft for a windscreen bug) and make sure you have sunglasses (to cope with sun strike, a common cause of proximity events). Understand whether rotary ops and fixed-wing ops at your destination aerodrome integrate into the circuit or operate in separate areas, confirm the direction of the circuit, or whether there'll be gliding ops the day you arrive, or any likely IFR flights.

"In this way, you'll have to attend to only truly unexpected events, and not to things you really could have prepared for, ahead of time," says Mark Woodhouse.

In the *Vector* article "Uncontrolled doesn't mean you" (March/April 2018) CAA Air Transport Inspector, Chris Nicholls (B-cat, flight examiner), said he'd add preparedness for the circuit of unfamiliar aerodromes, to that list.

"Just 15 extra minutes on the ground before departure is worth bucketloads in safety. Look at the AIP. Check the runway vectors. What's the surrounding topography like? Give a local a call and have a chat about what you can expect." ➤

// MORE INFORMATION

FAA Advisory Circular AC90-48E *Pilots' role in collision avoidance*

ATSB *Limitations of the see-and-avoid principle*

Vector Spring 2023 "Things that jeopardise your lookout"

Vector July/August 2009 "See and Avoid"

I LEARNED ABOUT LOOKOUT FROM THIS

This account of a loss of situational awareness at an unattended aerodrome, has as much relevance today, as it did when it happened some years ago.

I was reminded of my own close call at North Shore aerodrome, as I read the *Vector* article, “Things that jeopardise your lookout” (Spring 2023).

That article described a number of mid-air collisions, and emphasised that they all occurred when the pilots were undertaking degrees of non-standard practice.

Looking at my own near miss, I recognised two non-standard factors. Firstly, I was flying low-level circuits, and secondly, the Piper Cub I was flying was NORDO.

On the day in question, I was practising solo circuits at North Shore aerodrome on sealed runway 21. With extensive dual training under my belt, I remember feeling confident in my flying skills and in my level of situational awareness. I'd been completing low-level circuits with a slipping turn onto final approach. The Cub I was flying was a magnificent aircraft to throw around.

Despite mostly favourable weather conditions, I had to contend with a lowering winter sun. The sun's position obstructed my view when making a left turn from the downwind circuit position for runway 21.



Photo courtesy of David Gill

// A Piper Cub similar to the one flown by the author.

// If you can't effectively scan ahead to your intended position, don't go there. //

The glare was horrible at times and while I'd experienced significant glare before, I'd never been faced with that situation in a NORDO aircraft.

As I prepared to turn on to base leg for what would become my last circuit for the day, I performed my usual scan. But because of the glare, however, I rushed through it.

'Confident' there wasn't any traffic to worry about, I executed my usual side-slipping turn onto medium final approach.¹

On joining final, I began to descend. As I approached the boundary fence on runway 21, I happened to look down.

Below me, there wasn't just one, but two, pairs of wings shadowing the ground.

My thoughts at the time were very calm. I analysed the situation and corrected it. There was no fright, no pause, just an instant response. I remember thinking, "hello", then applied full power and climbed out to the right of the sealed runway for a go-around. I then re-circuited to land.

After realising what had actually happened, my calm demeanour amazed me, given that I'd almost landed on top of a Cessna 150, which was being flown by a young student pilot.

In contrast, the closest call I've had in a motor car was enough to give me the shakes afterwards. But I truly felt calm in the cockpit, despite the initial surprise. I credit that calm response to my long experience as a yachtsman. I'd encountered and navigated numerous emergency situations, some also requiring collision avoidance. This experience likely played a pivotal role in saving my life that day.

When I thought about it a bit more deeply, I realised that after my Cub came out of the sideslip onto final, it would have been approaching runway 21 at approximately 52 kts, whereas the C150 would have been travelling at approximately 60 kts.

That particular Cessna was slightly peculiar in those days, in that it used only 30 degrees of flap on approach, as opposed to the usual 40 degrees for earlier models of C150.

This made the Cessna's approach a bit quicker than usual. Unknown to me at the time, the Cessna pilot had done a larger than normal circuit and had come in on a longer final at a low angle of approach.

As we approached the runway together, he would have been moving away underneath me, but likely not fast enough to maintain separation had I continued to descend.

I'm fairly certain it would have been a mid-air collision if I hadn't taken avoiding action.

Later, I approached the young pilot of the Cessna 150 and apologised. He looked at me with a worried expression. It turned out he didn't know I was in the circuit either. He also hadn't seen me climb out ahead of him on my go-around.

The crucial lesson

That incident marked the last time I piloted an aircraft without a radio. The true lesson I took away from that day, however, was if you can't effectively scan ahead to your intended position, don't go there.

Avoid venturing into that airspace until you're 100 percent sure it's safe.

Looking back, what I should have done that day was extend my downwind leg. Doing so would have allowed me to complete an additional visual check to the left, from a position where the sun's glare was less blinding.

Had I done that, I wouldn't have had that glaring blind spot, and would have picked up the other aircraft in time. 🙏

// CAA COMMENT

Today's aerodromes are far busier than when the author of this story was conducting their low-level circuits. Today, while low-level (500 ft AGL) circuits are part of the training syllabus – particularly to cover low-ceiling operations – conducting low-level circuits at an unattended aerodrome must take traffic and conditions into account.

Good airmanship means low-level circuits should not be conducted while other traffic is involved.

Remember to apply right-of-way rules and stay alert when choosing to conduct a low-level circuit.

¹ Side-slipping allows you to adjust your angle and rate of descent in a flapless configuration.

BEWARE THE SLOWLY TAXIING HELICOPTER

Here's a heads-up to the pilots of light aircraft. It can take *minutes* for the air to settle in the wake of some helicopters.

The disturbed air behind a large, slowly taxiing, or hovering helicopter, can be as formidably dangerous as that behind a medium-sized passenger aircraft.

“Helicopters in New Zealand have become heavier over the years,” says CAA Safety Investigator David Oliver (ATPL-H). “This is just part of the aviation sector becoming more professional – those heavier helicopters are generally more capable.”

But the extra mass means the disturbed air those heavier aircraft leave in their wake is more severe and lasts longer.

“Pilots of light aircraft need to be hyper-aware of any helicopter operating in the vicinity, and to give rotary aircraft a good couple of minutes after they’ve gone ahead or passed by, before continuing to operate,” says David.

CAA Flight Examiner (H) Andy McKay says helicopters may hover taxi across an active runway with fixed-wing traffic on final.

“This presents an active risk, as the wake turbulence may affect the aircraft at a crucial stage in the low-speed round out. The heavier the helicopter, the greater the risk of a loss of control.”

Andy says that because fixed-wing and rotary aircraft often operate from common holding points or taxiways, flight instructors have a responsibility to educate students of the risks, early in training.

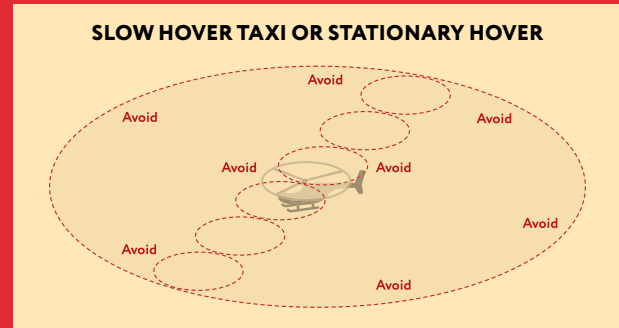
“Because if this guidance is left until the later stages of training, students are oblivious to the immediate danger of fixed-wing and helicopters operating in close proximity.”

What fixed-wing pilots can do to keep themselves safe

Communicate with the helicopter pilot, letting them know of your intentions, and actively listen when they state theirs.

Be patient. FAA studies indicate the disturbance created by a heavy-ish helicopter can affect the air for up to three minutes.

Park well away from an obvious helicopter movement area, Jet A1 fuel pump, or helicopter hangar. Smaller aircraft parked next to a helicopter hangar have been blown over by the downwash when the helicopter manoeuvres to its home pad.



// Fly at a distance of at least three times the diameter of a helicopter's rotors. Source: FAA

Be aware of wind direction. Wake vortices created by the helicopter can be driven towards another aircraft by even a slight crosswind.

Fly at a distance of at least three times the diameter of a helicopter's rotors in a slow hover taxi or stationary hover.

Think ahead. If a fixed-wing aircraft finds itself in a sudden and unexpected wobble due to wake turbulence, the chances are that it will be at extremely low-level.

“Taking immediate action, however, is vital,” says CAA Flight Operations Inspector Terry Curtis (ATPL-A). “You need to execute a swift go-around.”

“Getting entangled with rotary wake turbulence is a frightening experience, even if it's happened before, so you need to be proactive in avoiding this stuff.”

“You need to maintain great situational awareness, looking out and around for helicopters, particularly if they are operating at slow speeds, particularly if they're large-ish, and particularly if they're two-bladed. All these factors contribute to a more severe wake effect.”

What rotary pilots can do to keep other pilots safe

Communicate with fixed-wing pilots, letting them know of your intentions, actively listening when they state theirs.

When rotor downwash hits the ground surface, the vortex circulation is outward, upward, around, and away from the main rotors in *all* directions. Be aware of where aircraft are, the wind, and its effect on that downwash.

Fly a set – and therefore predictable – path to the FATO (final approach and take-off area) then hover taxi or ground taxi to where you need to be. ➤

THE LEGALITY OF AIPNZ

// By CAA Deputy Chief Legal Counsel John Parnell

This article is reproduced from *Vector*, Winter 2021.

The AIP is not, as a complete publication, legally enforceable. But in some cases, it *is* mandatory to comply with its advice.

Introduction

The *Aeronautical Information Publication New Zealand* is one-third of this country's answer to ICAO obligations to have an aeronautical information service. (The other two 'thirds' are a preflight information service and a NOTAM service).

Consulting the AIP is a fundamental part of flight planning because it contains a mixture of advice and information from a variety of sources, including aerodrome operators.

The AIP is not, in itself, legally enforceable. But, depending on the underlying requirements of the Civil Aviation Rules (or CARS) or those of the Civil Aviation Act 1990, (referred to here as 'the Act'), information in the AIP can become a compulsory requirement. Or it provides an exception to specific requirements in the rules.

Pilot obligations under section 12

Section 12 of the Act is a key provision obliging aviation participants to act responsibly, safely and in accordance with the relevant prescribed safety standards and practices.

The aeronautical information in the AIP would, in some cases, constitute safety standards and practices. As such, acting contrary to procedures in the AIP could constitute a breach of section 12 of the Act.

The AIP and the rules

Rule 91.223 provides a good example of how the rules and the AIP work together.

Under CAR 91.223(3) a pilot operating on or in the vicinity of an aerodrome *must* perform a left-hand aerodrome traffic circuit when approaching for a landing at and after take-off from an aerodrome *that is published in the AIP.* »



» There are, however, two exceptions to this:

- (i) The pilot is otherwise authorised or instructed by ATC; or
- (ii) the IFR procedure published in the AIPNZ for the runway being used specifies a right-hand turn and the approach for landing or the take-off is being performed in accordance with the instrument procedure.

Also under rule 91.223(4) a pilot operating on or in the vicinity of an aerodrome *must* perform a right-hand aerodrome traffic circuit when approaching for a landing at and after take-off from an aerodrome that is published in the AIPNZ, *if the details published in the AIPNZ for the aerodrome specify a right-hand aerodrome traffic circuit for the runway being used.*

There are also two exceptions to this:

- (i) The pilot is otherwise authorised or instructed by ATC; or
- (ii) the IFR procedure published in the AIPNZ for the runway being used specifies a left-hand turn and the approach for landing or the take-off is being performed in accordance with the instrument procedure.

As you can see, in the former case, if a right-hand circuit direction is specified in the AIP it displaces the left-hand turn requirement in CAR 91.223. In the latter case, the rule requires the pilot to comply with the right-hand turn circuit if this is published in the IFR procedure in the AIP.

In the above situations, the AIP circuit direction is incorporated into the rule requirement and has legal force. This means that in the absence of a permitted and recorded change in the AIP (consistent with the exceptions set out above), the law requires a right-hand circuit approach except in emergency situations (discussed below).

There are numerous other provisions in CAR Part 91 that reference the AIP, and the CAR requirements are dependent on the information in the AIP.

Compliance in emergencies

All aviation participants have an obligation to comply with the CARs. However, civil aviation legislation does allow for a departure from the CARs in emergency situations.

Under section 13A of the Act, a pilot-in-command may breach the CARs in emergency situations, subject to the following requirements in section 13A(2):

The emergency involves a danger to life or property; and

- c) the extent of the breach of the prescribed requirement goes only as far as is necessary to deal with the emergency; and
- d) there is no other reasonable means of alleviating, avoiding, or assisting with the emergency; and
- e) the degree of danger involved in complying with the prescribed requirement is clearly greater than the degree of danger involved in deviating from it.

The CAA will exercise sensible discretion in how it treats any departure from CAR-mandated AIP procedures in emergency situations but expects participants to otherwise comply.

More information, if you're interested

The obligation on New Zealand to have an aeronautical information service comes from international law, via ICAO requirements in annex 15.


In New Zealand, these requirements obliges the CAA to:

ensure the collection, publication, and provision of charts and aeronautical information, and to enter into arrangements with any other person or organisation to collect, publish, and distribute such charts and information¹:

The CAA is also required to:

ensure that an information service is provided which shall comprise the collection and dissemination of aeronautical information and instructions relating to the safety, regularity, and efficiency of air navigation².

The three features of New Zealand's aeronautical information service – the AIP, a flight information service³ and the NOTAM service⁴, must be made readily available to any person (once they've paid a reasonable charge)⁵.

While it's the CAA's responsibility to make sure an AIP is published, the legislation allows for this service to be contracted out – in New Zealand's case, to the Aeronautical Information Management unit at Aeropath Limited. The CAA certifies Aeropath under Part 175 of the CARs to do this. 

1 See section 72B(2)(g) of the Civil Aviation Act 1990.

2 See section 75(1) of the Civil Aviation Act 1990.

3 See definition of "flight information service" in Part 1 of the CARs.

4 See definition of "aeronautical information service" in Part 1 of the CARs. NOTAM is also defined Part 1 and means a "notice distributed by means of telecommunication containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations".

5 See section 75(2) of the Civil Aviation Act 1990.

SAFETY IN NUMBERS

...or how private flying stats help us make better decisions.

Every year we receive, compile, and analyse thousands of pieces of data from the aviation system – things like accidents, incidents, airspace busts, and bird strikes.

But that's only half the picture.

That information doesn't need to be just gathered. It needs to be useful, and to be useful it needs to be complete and accurate – and that's where you can help.

If we know the number of hours flown by pilots throughout New Zealand each year, we get a sense of what 'normal' is, and we get a sense of what 'risky' looks like.

So, if you're a private aircraft owner, you'll receive an email in late December, asking you to report your aircraft operating statistics. Please do your bit (and meet your legal obligation) and help us improve the quality of our aviation safety data. Then we can help you right back by highlighting where most risk is, in our civil aviation system.

If you have any questions, please contact our analytics team at stats@caa.govt.nz.

YEAR-END LICENSING REMINDER

The last day for issuing licences in 2023 will be Thursday 21 December. Licences will again be issued from 8 January 2024.

Licence applications are dealt with on a first-in, first processed basis. Calling the licensing unit doesn't 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 up to 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 offices of the CAA will close at 2pm **Friday 22 December** and re-open **Monday 8 January**.

OCCURRENCES DASHBOARD

These are the number and type of occurrences reported to the CAA, 1 July 2023 to 30 September 2023.

Occurrence type

13	Aircraft accident
78	Aerodrome incident
368	Aviation-related concern (of which 93 were laser strikes)
482	Airspace incident
426	Bird strike
224	Defect
10	Dangerous goods occurrence
9	Hang glider accident (of which 4 involved paragliders)
675	Operational incident (for example, encountering severe icing)
24	Navigation installation occurrence (for example, a transmitter failure)
6	Parachute accident
6	Promulgated information occurrence (for example, inaccurate weather information)
2321	Total occurrences

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.

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

Richard Lane – Maintenance, South Island
027 296 5796 / richard.lane@caa.govt.nz

Pete Gordon – Operations, North Island
027 839 0708 / peter.gordon@caa.govt.nz

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

ACCIDENT BRIEFS

Cessna P206E

Date and time:	18-Oct-2022 at 08:05
Location:	En-route
POB:	1
Nature of flight:	Private other
Pilot licence:	Commercial Pilot Licence (Aeroplane)
Age:	58 yrs

The aircraft suffered an engine failure while cruising at 2500 feet. Trouble checks did not rectify the engine failure. The pilot declared a MAYDAY then they carried out a forced landing into a paddock. On touchdown the aircraft struck a tree and came to rest upside down. The pilot wasn't injured but the aircraft was significantly damaged.

The pilot had departed with about 75 litres of fuel onboard, and the aircraft had been airborne for approximately 22 minutes before the engine failure. The post-accident inspection didn't uncover any pre-existing defects in the airframe, the engine, fuel, or ignition systems, or in any of the mechanical components of the engine.

The aircraft was fitted with long-range fuel tanks, which had a higher quantity of unusable fuel compared with standard fuel tanks. After the accident, fuel was found in one of the tanks, but not the other. It is possible that with the fuel onboard on departure, the selected tank was depleted after 22 minutes at low altitude, causing the engine to hesitate and then stop. When the pilot changed tanks during the trouble checks the fuel boost pump may not have been turned on, which could have prevented a successful restart of the engine.

CAA occurrence number 22/6147

Celier Xenon

Date and time:	28-Jan-2022 at 14:45
Location:	Feilding
POB:	2
Nature of flight:	Private other
Age:	73 yrs

During a BFR flight, after rolling out from the third landing at approximately 30 knots, a wheel came off causing the gyrocopter to roll over. The student and instructor vacated the aircraft, without injury. Fire then destroyed the aircraft.

The cause is suspected to be from a suspected crack in the wheel axle. There is one other aircraft of this type on the NZ register which has been inspected both visually and via x-ray without any cracking evident.

CAA occurrence number 22/487

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.

Cessna A185E

Date and time:	13-Aug-2022 at 15:29
Location:	Tutaki Rd North
POB:	2
Damage:	Destroyed
Nature of flight:	Private other
Pilot licence:	Private Pilot Licence (Aeroplane)
Age:	61 yrs
Flying hours (total):	1299
Flying hours (on type):	1133
Last 90 days:	9

During the final approach to land at a private airstrip, the pilot realised that their airspeed and height were both too high for a safe landing. Another aircraft was parked towards the far end of the airstrip, leading the pilot to think that they might not have sufficient runway length to stop, so they commenced a go-around.

During the go-around from low level, a high angle of bank turn to the right was initiated. During this turn the aircraft's right wing struck terrain and the aircraft cartwheeled into a small gully adjacent to the airstrip.

Both the pilot and passenger suffered serious injuries and the aircraft was destroyed.

This accident highlights the need for pilots to nominate a decision point on the final approach so that if they are not confident the aircraft is stable on the approach (height, airspeed, and configuration) then a go-around can be initiated at an early stage.

At an unfamiliar airstrip/aerodrome, a standard overhead join should be carried out (which was not done in this case) to enable the pilot to observe the conditions and to carry out appropriate planning for the approach and landing.

CAA occurrence number 22/4716

ACCIDENT NOTIFICATION

24-hour 7-day toll-free telephone

0508 ACCIDENT (0508 222 433)

aviation.govt.nz/report

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.

GA DEFECTS

KEY TO ABBREVIATIONS:

AD = airworthiness directive **NDT** = non-destructive testing
TIS = time in service **TSI** = time since installation

Cessna 172M

LH flap push/pull rod

Part number: 0523537-2

ATA chapter: 2750

During a dual training flight for wing drop stall revision, while configuring the aircraft with the first 10 degrees of flap, a loud bang was heard from the left-hand side of the aircraft. Looking toward the left wing, the instructor noticed that the left flap was in the 0-degree position and the right-hand flap was in the 10-degree position. The right-hand flap was retracted, and the aircraft handling was normal. The flight continued and the aircraft returned to the departure aerodrome for an uneventful, flapless landing.

The maintenance investigation found that the left-hand flap push/pull rod had broken near the rod end. The flap system was inspected and both flap push/pull rods were replaced as a precaution.

[CAA occurrence number 23/4601](#)

Hughes 269C

Bell crank

Part model: 269C

Part manufacturer: Hughes Tool Company

Part number: 269A7519

ATA chapter: 6200

TTIS hours: 18436.8

While completing a preflight inspection, the pilot discovered a crack in the lower M/R bellcrank arm P/N 269A7519. It was reported that there were no prior indications of corrosion or a crack developing.

The bellcrank arm was sent to the manufacturers who determined that wear in the bellcrank arm bushing resulted in undue loading of one side of the arm, causing fatigue cracking.

The CAA issued CAN 27-023 – Schweizer/Hughes 269C Helicopters – Cracked Main Rotor Longitudinal Pitch Mixer Bellcrank on 22 June 2023 to highlight this issue.

[CAA occurrence number 23/1507](#)

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.

P/N = part number

SB = service bulletin

TSO = time since overhaul

TTIS = total time in service

MBB-BK117 B-2

After a winch unit head failure, the investigation, in consultation with the winch manufacturer, highlighted that under certain circumstances while reeling out the cable with no load, the cable extraction system can be overcome. This results in an instantaneous loosening of the cable on the winch drum.

The crewmen leader has re-emphasised correct techniques regarding 'paying out the cable' and has introduced a single step procedure to ensure any loosening on the drum or 'birdnesting' is discovered before committing to any hoisting. Aircrew have been notified of this new procedure.

The crewmen training team also visited operator bases to demonstrate and discuss this issue.

[CAA occurrence number 23/3097](#)

Beech 76

ATA chapter: 3200

While carrying out dual circuit training, the landing gear would not extend when selected down. Emergency extension procedures were carried out successfully.

The maintenance investigation determined that the hydraulic pump/motor assembly was defective. The landing gear electrical motor was inspected, and excessive dust from the motor brushes was found within the motor. The system only produced 850psi pressure but it requires 1550psi to operate.

The hydraulic pump/motor assembly was replaced. Operational checks were carried out, and found to be satisfactory.

[CAA occurrence number 23/2444](#)

CORRECTION

On the 'GA defects' page of the Spring 2023 issue of *Vector*, we wrote that the TTIS of a #2 cylinder in a Piper PA-31-350 was 55,532.05 hours. This was an error that sneaked past us all! The total time in service was in fact 5487.10. Apologies to the LAME concerned.

HOW UNICOM DIFFERS FROM ATC AND AFIS

	UNICOM This is <i>not</i> an air traffic control service	AIRWAYS CONTROL TOWER	AERODROME FLIGHT INFORMATION SERVICE (AFIS)
Primary function	Provides aerodrome information and known traffic, <i>only</i> if the pilot requests it	Facilitates and controls the flow and separation of airborne and ground traffic on and in the vicinity of a controlled aerodrome	Enhances a pilot's situational awareness, providing relevant information to allow pilots to make informed decisions
Where	Ardmore (NZAR) Whanganui (NZWU)	All controlled aerodromes in NZ	Paraparaumu (NZPP) Milford Sound (NZMF)
Airways staff	✗	✓	✓
Issues clearances	✗	✓	✗ May relay IFR clearances on behalf of ATC
Provides known traffic information to pilots	✗ But if the pilot requests it, may provide information from traffic reports that aircraft have made to UNICOM	✓	✓
Provides traffic separation	✗ Pilots remain responsible for their separation from other users	✓ Dependent on class of airspace	✗ Pilots remain responsible for their separation from other users
Provides ATIS or AWIB	AWIB	ATIS	Paraparaumu – none Milford Sound – AWIB
AFRU (Automatic frequency response unit) 'beep back'	✓ Ardmore ✗ Whanganui	✗	✗
Provides aerodrome information, weather, and runway in use	✗ Unless pilot requests it	✓	✓
Facilitates special VFR	✗	✓	✗

