Pointing to safer aviation

Winter 2026

vector

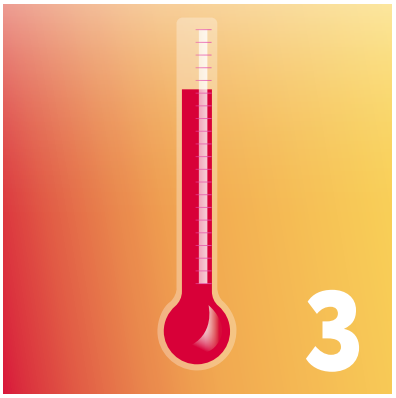
CRITICAL INFO FOR AIRWORTHINESS

Strengthen your ability to manage stress

Shiftwork and sleep

Safety around stationary aircraft

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



// STRENGTHEN YOUR ABILITY TO MANAGE STRESS

// SHIFTWORK AND SLEEP

// SAFETY AROUND STATIONARY AIRCRAFT

Cover: Manufacturer service information is essential to airworthiness. Some operators/owners, however, ignore it – or mistakenly turn over the responsibility of following the advice in service information to their maintenance engineers. Read our cover story on page 10.

Photo: iStock.com/zoranm

// CRITICAL INFO FOR AIRWORTHINESS

In this issue...

vector

CIVIL AVIATION AUTHORITY OF NZ

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Reader comments and contributions on aviation safety are welcome. Let us know your thoughts by emailing education@caa.govt.nz. We'll try to publish a selection in each edition, although they may be edited or shortened.

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STRENGTHEN YOUR ABILITY TO **MANAGE STRESS**

In short bursts, stress sharpens performance. Danger arises when there's no release from that stress.

//**KATHERINE GILLESPIE**
FOUNDER, GROWFORTE

Imagine a suspension bridge. It moves and stretches under the force of the weather and the weight of traffic. Then it settles. Then it moves and stretches again. That stretch-relax cycle is normal. It's how the bridge was engineered to respond.

But if that bridge was kept under constant tension, with no reprieve nor maintenance, eventually something would 'give'.

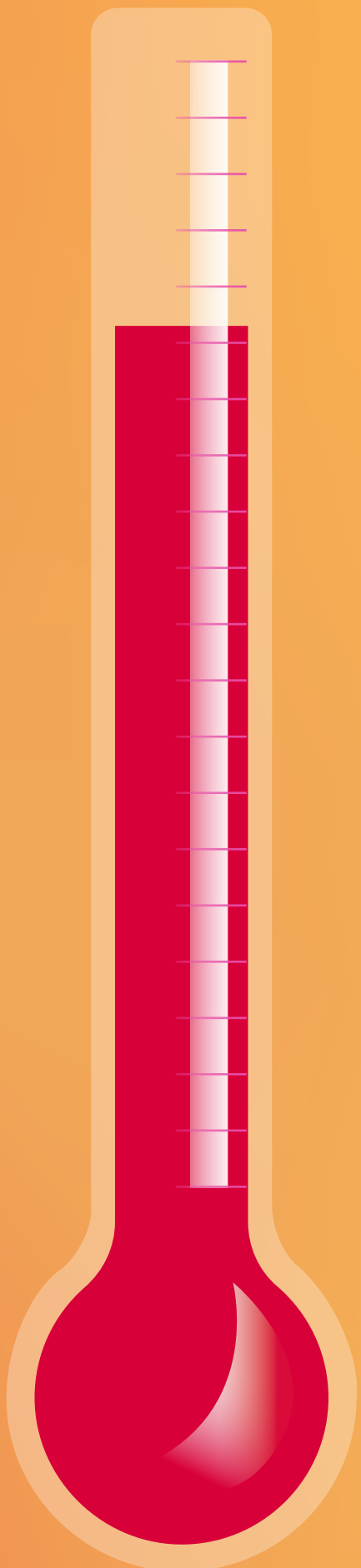
The issue wouldn't be the load itself. It would be the sustained load *without recovery*.

The same principle applies to the human system.

In aviation – and life – stress is inevitable. We experience high workload, time pressure, complexity, and responsibility. They're part of the human operating environment. And ideally, we move and stretch to cope with those stressors.

And brief periods of pressure improve our performance. The brain activates its threat-detection systems, adrenaline rises, brain chemistry changes, attention narrows, and reaction speed increases. Short bursts of stress can sharpen working memory, boost motivation, and increase energy availability – all of which support fast, effective action.

Like the suspension bridge, the risks emerge when there's no opportunity to recover, when the stress response stays switched on for too long. »



What sustained load does to the brain

When stress remains elevated over time, the prefrontal cortex – the part of the brain responsible for planning, decision-making, behaviour, and emotion regulation – becomes less efficient.

That shows up as poorer:

- judgement
- risk assessment
- impulse control
- working memory
- communication
- decision-making.

Sustained chronic stress increases negative 'emotional reactivity' which, in practical terms, can look like:

- reduced tolerance for even small changes to a routine
- poorer situational awareness
- slower information processing
- increased irritability
- increased probability of errors
- an almost unconscious shift in tolerance of risk (either it becomes harder to make decisions, or we accept risks we normally would not accept).

A loss of sleep makes this worse. Even moderately restricted sleep impairs attention, decision-making, and risk evaluation.

Without adequate recovery, the human system does not adapt. It simply accumulates strain, with emotional and physical consequences.

The myth of perfect balance

We often hear about 'work-life balance' as if it's a static beam, perfectly balanced on a fulcrum, with equal weight on both ends.

But we rarely live life in such perfect balance. We make plans and then life shifts.

There are sudden roster changes to deal with, unexpected operational delays, training demands, audits, fleet transitions, check cycles – and family pressures.

Resilience during such periods is not the ability to freeze the level beam in place.

It's about managing the beam when it see-saws, as it inevitably will.

Let's do for ourselves what we do for our aircraft

In aviation we understand structural limits. We calculate load. We inspect for component fatigue. We build in safety margins, such as fuel reserves and alternate

Practical tools for mental recovery

Strengthening our ability to handle stress doesn't demand anything complicated. It simply requires regular, small, repeatable behaviours that help us recover and steady ourselves. This includes building in 'circuit-breakers' throughout the day to stop load from accumulating.

Gentle breathing reset

Box breathing, with equal counts on every breath, gently activates the body's parasympathetic rest-and-digest system. Try this:

Inhale through your nose for four seconds. Hold for four. Exhale slowly through your mouth for four seconds. Hold for four.

Repeat for two minutes.

This balanced and slowed rhythm lowers heart rate and cortisol, signalling to your nervous system that you are safe.

A simple, quiet reset you can return to any time during a busy day.

Name the load

Research shows that labelling an emotional state reduces its intensity. Instead of reacting automatically, pause and say:

"I'm feeling fatigued"

"I'm working under pressure"

"I'm feeling frustrated"

"I'm getting overloaded"

"My body is tensing up"

"Anxiety is showing up".

This helps the brain move out of threat mode and back into clarity and control.

aerodromes. And we do not allow our aircraft to operate continuously at structural limits.

Yet many of you reading this will operate personally at maximum capacity – your structural limit – day after day after day.

When our personal safety margins disappear, our tolerance shrinks, our cognitive bandwidth diminishes, and fatigue from constant decision-making leads to burnout and anxiety.

So what are the safety margins we can incorporate into our daily life that help protect our physical and psychological safety?

Here are some of the most important.

- Protect sleep as non-negotiable.
- Avoid back-to-back high-stakes decisions.
- Allow decompression time after high workload periods.
- Limit unnecessary digital interruption.
- Say "no" when capacity is already stretched.

A shift from enduring to managing

Aviation culture has traditionally valued endurance – pushing through and getting the job done – but endurance has limits.

We've all had periods where we've just kept enduring, running at full capacity with no spare time, no mental space for considered thinking, and no tolerance for disruption. And when we operate like that for too long, we eventually hit the wall.

We can, however, expand our capacity to deal with stress. So, rather than just suppressing stress any way we can – by using alcohol, for instance – we can build our ability to do the following:

- stretch – tolerate stress without breaking
- recover – bounce back after a stressor
- adapt – adjust to new or ongoing stressors
- return to baseline – settle back into a stable, healthy state after the stress has passed.

Nothing catastrophic has to occur for safety margins to erode. Small, cumulative degradations are enough.

By building in daily recovery periods, we're carrying out preventative maintenance on our human system. We're creating slack, releasing tension, and protecting the structure of our metaphorical suspension bridge before strain accumulates.

In aviation, the load won't disappear, but we do have a say in how we engineer our response to it.

Because when pressure rises – and it will – we don't want to 'give'. We want to 'flex' and keep performing at our best.

Use micro-recovery windows

The brain works in natural performance cycles of around 90 minutes. After that, efficiency declines, but short resets every 60 to 90 minutes help prevent cumulative overload. You might:

- **stand and move**
- **hydrate**
- **step outside**
- **change your visual field focus – eg, focus on a distant horizon or the clouds**
- **do two minutes of slow breathing cycles.**

Catch up with a colleague

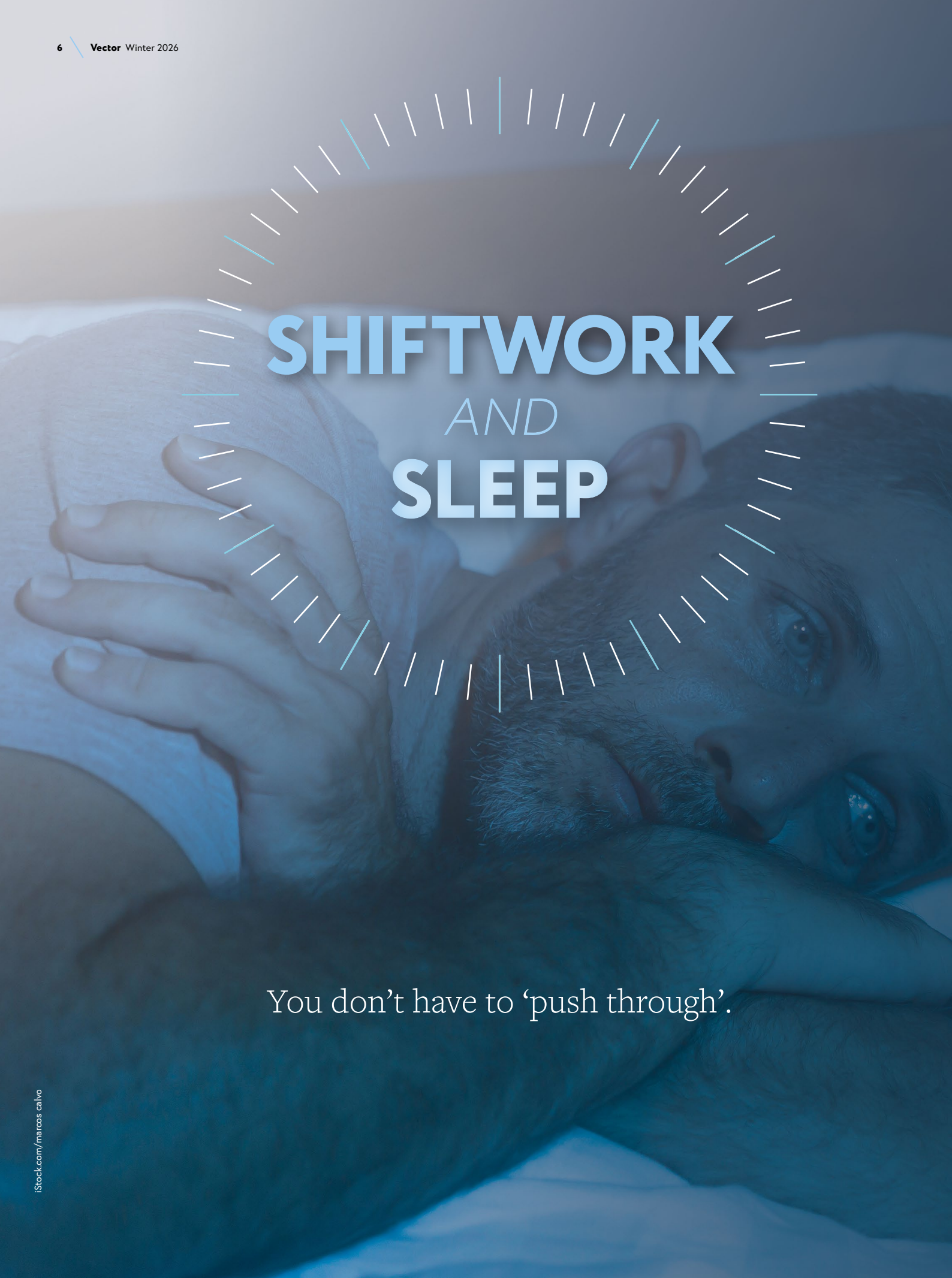
Isolation increases strain and connection reduces it, so crew and staff culture matters. Open debriefs, respectful challenging, and building a team culture where it's safe to ask questions or admit mistakes all help distribute mental load across the team.

Connection switches off our threat system and helps us get back into a more relaxed state.

Strong and supportive relationships both at work and in life act as protective factors.

SHIFTWORK *AND* SLEEP

You don’t have to ‘push through’.



iStock.com/marcos calvo

As most *Vector* readers know, shiftwork is woven through commercial general aviation – from search and rescue crews to agricultural pilots and maintenance engineers.

And anyone who's worked shifts understands first-hand that our natural sleep rhythms clash with the schedules of rosters and shiftwork.

Sleep psychologist Dan Ford, from The Better Sleep Clinic, says the link between shiftwork and sleep problems is complex. But following some basic sleep principles, and getting help when those aren't working, can change your life and make your work safer for you and those around you.

Rotating shifts add complexity

Most shiftworkers don't work permanently on one timing. They may swing between nights, early mornings, afternoons, and a normal daylight schedule.

"For your body, the adjustment is like flying through different time zones, landing, trying to settle, then flying to another one," Dan says.

Fast-rotating rosters are the most difficult for a shiftworker to manage. "The body clock likes stability and regularity," he explains.

The most common mistake

On the first day off a shift block, Dan says the most predictable error people make is to think they must sleep as long as possible to catch up on lost shut-eye.

"That's usually what causes the problem. They're oversleeping in the belief that they need to compensate. But the body compensates through deeper, more intense sleep, not by extending your total hours of sleep excessively.

"Don't let your sleep window blow out. Most people don't need more than eight hours."

Minimising sleep disruption

While treatment for sleep problems is highly individualised, Dan says shiftworkers without underlying sleep disorders can boost their chances of getting good quality sleep by following a few reliable tips (sometimes called 'sleep hygiene'). These are generally well known, but always worth repeating.

- Keep your bedroom dark by using blackout curtains or an eye mask.
- Keep the room cool – you'll sleep better at lower temperatures.
- Reduce noise as much as possible.
- Avoid alcohol and nicotine – they interfere with sleep, making it lighter, fragmented, and less refreshing.
- Taper off caffeine by the end of the first half of your shift.
- Avoid bright morning light on the drive home after a night shift – for example, wear sunglasses.

"These are the basics for people who are otherwise sleeping okay," Dan says. "But once someone is experiencing real sleep dysfunction, these steps won't fix it."

When sleep hygiene isn't enough

Sleep hygiene is preventative, Dan says – like brushing your teeth. "Brushing prevents cavities – it doesn't fix them when they've developed. If you've done all the sleep hygiene guidance and you still don't sleep well, you're in sleep disorder territory. It's probably not going away by itself."

He says Shift Work Disorder (SWD) is a recognised sleep condition affecting 10 to 40 percent of shiftworkers. Rates are higher among those on rotating and night shifts.

"An aircraft engineer came to me for help with SWD," says Dan. "He was confused and frustrated, asking, 'Why now, after 30 years of working shifts?' But sleep dysfunction can get worse as you get older."

Stopping shiftwork doesn't always fix SWD, Dan adds. Some people develop persistent insomnia or body clock disruption even after moving to day work.

SWD often overlaps with other issues, including pre-existing insomnia. Dan says he sees SWD presenting in these three main ways:

- people who can't sleep after their shift
- people who are extremely sleepy when they need to be awake
- a mix of both situations. 》

// Don't let your sleep window blow out. Most people don't need more than eight hours. //

Treatments for SWD draw on insomnia therapy and circadian rhythm therapy.

"We might use melatonin (a synthetic supplement that mimics your natural sleep hormone). We may use bright light therapy to keep people more wakeful when they need to be awake. We may simply recommend sleep schedule changes that get the sleep-wake system back in alignment."

When and how to get help

A good time to seek support, Dan says, is when the problem isn't improving despite doing the basics. Clinically, several nights of disrupted sleep a week over three months is often used as the indicator of SWD. But Dan emphasises a simpler rule:

"If it's affecting your day, that's the sign."

Professional assistance is available within the public health system, and privately.

Dan says different professionals treat different disorders. Psychologists like him treat insomnia and circadian rhythm disorders with mainly *behavioural* sleep treatments. Medical specialists treat issues such as sleep apnoea with *medical* interventions.

How long does treatment take?

"For insomnia alone, it's about five sessions over a couple of months," says Dan. "Shift Work Disorder cases are often similar – about 8 to 12 weeks. It varies, but it's not years of therapy."

Fatigue vs sleepiness

One of the biggest misunderstandings in aviation is the difference between fatigue and sleepiness.

Fatigue is a lack of physical and mental energy that builds over time, while sleepiness (nodding off or having 'microsleeps') goes away quickly once you get enough sleep. Fatigue takes longer to remedy – often two weeks of consistent, good-quality sleep before energy noticeably improves.

In operational settings, Dan says, fatigue management usually means sleepiness management – preventing people from falling asleep on the job. But the emotional and cognitive exhaustion of fatigue is its own, quieter risk.

Help is available

Shiftwork, sleep loss, and fatigue are interlinked and complex. But Dan's message is reassuring: these problems are common, understandable, and treatable. No one needs to just 'push through.'

If loss of sleep is affecting your health or your safety, it's time to ask for help.

A PILOT'S EXPERIENCE WITH SHIFTS AND SLEEP

Clayton Girven is Chief Pilot IFR at HeliOtago. One of the busiest air ambulance operators in the country, it covers the lower half of the South Island to the subantarctic islands. Its crews regularly fly as far as Christchurch with patients needing urgent specialist care, often during the night.

Alongside sleep specialists, Clayton helped develop a new roster when the CAA introduced changes to fatigue management requirements.

How HeliOtago's split-shift system works

Clayton and his colleagues work a four-days-on, four-days-off roster. It's built around a split-shift model, with pilots working a six-hour day window and a six-hour night window, rather than the more common two 12-hour days, then two 12-hour night shifts.

The pilots must live close enough to base to go home between these windows. This allows them to sleep at home rather than spending long, draining stretches waiting on base. The shorter duty periods fit better around natural sleep cycles and the timing of night callouts, giving pilots more predictable opportunities to rest.

"The split-shift roster turns long, sometimes inactive 12-hour shifts into shorter, better-timed duty periods that match flights actually happening. Pilots end up flying more missions, remaining more current, and accumulating 340 to 400 flying hours a year," Clayton says.

He believes those flying hours are essential for maintaining the skills required for night, mountain and night-vision goggle flying – all routine parts of the Otago air ambulance workload.

// HeliOtago in action near Dunedin's Tunnel Beach.

Photo courtesy of Stephen Jaquiery

> // The company can't force a pilot to sleep – it's the pilot's responsibility. //

Clayton says no matter how a roster is built, the body's circadian rhythm can't be ignored. "The hardest times to stay alert are around midnight to six in the morning. Any HeliOtago pilot who works through those times is stood down for eight hours, or longer if necessary. They don't return to duty unless they're properly rested."

To prevent extended sleep disruption, HeliOtago allows only two nights that keep a pilot out after midnight. A third night triggers a 24-hour stand-down.

How sleep debt shows up

Sleep can be easily interrupted by ordinary life, Clayton says. With a young family, his sleep after a night shift is sometimes broken as the children get ready for school. He uses blackout curtains and goes back to sleep once the house is quiet. Although HeliOtago has five sleeping rooms at its Dunedin base and three in Queenstown, pilots prefer to sleep at home whenever possible.

After more than two days without proper rest, Clayton says sleep debt sets in. "You feel tired, run down, and you may be more likely to get sick."

Irritability and short tempers appear too. While HeliOtago's systems and culture protect sleep as much as possible, Clayton says pilots must still be disciplined in managing their own sleep, rest, and routines.

The most challenging time, he says, is often between three and five in the morning – usually after delivering a patient to hospital and beginning a long return flight.

"On the return legs, especially in the early-morning circadian low, the H145's autopilot and modern systems mean the workload can drop very low. On a calm, clear night, that quiet, steady flight can make it easy for tiredness to creep in."

To manage that, the crews rely on human strategies, including:

- using two pilots for demanding missions
- putting a crew member in the front seat to keep the pilot engaged on the return leg
- taking 15 to 20-minute naps while parked at a hospital
- stopping overnight if needed.

Clayton says they're fortunate to have enough resources to rotate pilots and aircraft when required.

Discipline and structure are vital

With 1900 hours of night flying behind him, including nearly 1600 hours using night-vision goggles, Clayton says discipline and structure are crucial to managing shifts and sleep.

His fitness routine encourages that, and helps to maintain the mindset he needs to manage himself at work – including getting enough sleep when he's off duty.

"The company can't force a pilot to sleep – it's the pilot's responsibility."

The job demands flying through the darkest hours, over long distances, in weather, sometimes using night-vision goggles. One thing that makes that possible is sleep – protected deliberately, recovered when disrupted, and treated with the same seriousness as any other part of the operation.

CRITICAL INFO FOR AIRWORTHINESS

AIRCRAFT SERVICE INFORMATION

There's a plethora of service information for an aircraft. Here's a summary for you to digest, then read "Ignore service information at your peril" on page 12.

Photo: CAA

From the manufacturer to operators and maintainers

Service letters and **service bulletins** are documents from aircraft and component manufacturers. They come under a variety of names but collectively they're referred to as manufacturer service information.

They're all important for operators and owners to take note of, but they do differ in their urgency.

For example, service or information letters are often non-aircraft related material – like, how long the company will be closed for Christmas. But some service letters can be alerts to maintenance issues. Without reviewing them, you just don't know which category they fit into.

Service bulletins, on the other hand, can be:

- alerts addressing a new safety concern – the manufacturer will state in the bulletin how critical the risk is
- recommended modifications or inspections that may improve costs or safety
- mandatory actions (instructions for continued airworthiness) established as part of the type certification process, such as propeller or engine life limits.

If it's deemed serious enough, the manufacturer will make the service bulletin mandatory. This may signal to the aviation industry that a mandatory airworthiness directive issued by the National Airworthiness Authority – in New Zealand that's the CAA – will soon follow.

For more information about service bulletins and service letters, read Continuing airworthiness notice 05-002 *Revision 1: Manufacturer Service Information Compliance*.

This provides guidance to aircraft owners and maintenance engineers to help them assess whether they need to comply with manufacturer service information.

Issued by the CAA

Airworthiness directives (**ADs**) are mandatory airworthiness requirements issued by the Director of Civil Aviation. They include a date or timeframe for compliance, or for an inspection to be carried out.

Continuing airworthiness notices (**CANs**) are similar to a service bulletin, but they're released by the CAA, not a manufacturer.

CANs alert and educate the aviation community about an ongoing issue, and recommend action to mitigate the issue. While not mandatory, operators and owners have a responsibility to take note of CANs in exactly the same way as they would for manufacturer service information.

Have a procedure to review

"It's beneficial for an operator to maintain a list of applicable manufacturer and vendor websites where service information is published," says CAA Inspector Richard Bennenbroek.

You can sign up to be emailed alerts, but Richard warns that email can be unreliable, so you should have a procedure to regularly check for updates.

"Emailed alerts can go to junk mail, so we advise operators to regularly review the website themselves."

To get an email alerting you to published airworthiness directives and airworthiness issues, go to **aviation.govt.nz/subscribe**.

For airworthiness directives, go to **aviation.govt.nz/airworthiness-directives**.

For continuing airworthiness notices, go to **aviation.govt.nz/airworthiness-directives** > **continuing airworthiness notices**.

IGNORE SERVICE INFORMATION AT YOUR PERIL

It's the operator's responsibility to ensure an aircraft meets all airworthiness requirements. This responsibility cannot be delegated to an engineer.

Reading, understanding, and acting on manufacturer service information is often perceived as part of maintaining an aircraft – and therefore the responsibility of a LAME (licensed aircraft maintenance engineer).

The reality is, however, that service information is fundamental to ensuring the airworthiness of the aircraft and is, therefore, the responsibility of the operator.

As CAA Airworthiness Inspector – and LAME – John Caulton says, operators assessing service information, as it's issued, is a crucial part of an aircraft's continuing airworthiness.

But John says that when he talks to an operator, often they haven't reviewed manufacturer service information for many years.

"They tell me, 'Oh, they're not mandatory', or 'I leave all that to my LAME'."

John says there are several problems with that approach.

- The operator is ultimately responsible for airworthiness, not the LAME.
- The LAME doesn't always know the context in which the aircraft is being operated from one week to the next. So, in some cases, they may not know exactly what service information is relevant.
- The review of airworthiness (RA) is there for the IA (inspection authorisation) certificate holder to check that all maintenance is performed or assessed in response to manufacturer's service information, and is appropriately recorded.

  But, because there's often not enough time at the RA, it should not be assumed that the IA holder will actually review the service information itself.
- Additionally, some service information may need to be actioned sooner than annually.
- The operator must look at the whole context of their operation and ask, "Is this service information about a risk relevant to me?" If they don't know the technical side, they might *involve* their LAME, but not *leave it solely* to the LAME.

The rule

Rule 91.603 *General maintenance requirements* requires operators to ensure their aircraft are maintained in an airworthy condition. To do this, operators should have access to all available instructions for continued airworthiness, which includes manufacturer service information.

This is to assess whether the information may apply to their aircraft, and to take the appropriate action, if needed. This assessment should be carried out by a knowledgeable person, and the outcome recorded in the appropriate logbook.

If you choose not to carry out the recommendations of an applicable service letter or bulletin, you should have a valid reason for it, and record that reason. This improves transparency and helps subsequent operators or engineers understand why a particular decision was made.

And heads-up, if your maintenance programme (approved by the CAA) states that you'll comply with manufacturer service information – even the non-mandatory ones – and you don't, you're not complying with your approved documents.

Photo: CAA

The solution

Richard Bennenbroek says the most important thing operators can do is establish a procedure to access and assess manufacturer service information for applicability to their aircraft as it's issued.

"Service information is an early warning – as soon as possible, have that procedure to review in place."

The financial fall-out

There are clear benefits to taking action on service information, says Richard.

"Occasionally, service information will be followed by an airworthiness directive. The operator can prevent delays and additional financial costs if they've already acted by the time the AD is published."

Change of owner or maintenance provider

Whenever an aircraft changes hands, the new owner needs to check the maintenance records to see which service information has been reviewed, and what maintenance has been carried out, says John Caulton.

"A new pilot or operator may use that aircraft in a different manner. They should consider what has, or has not, been done to that aircraft as it applies to the new situation and operations.

"That would include reviewing the aircraft maintenance logbook to make sure it's been kept up-to-date, and that the service information has been reviewed.

"But we're finding this is often not being done."

Richard Bennenbroek says the value of an aircraft is often a reflection of the quality of its documentation.

"An aircraft's records must include the details of service information that's been reviewed. In the past, some sales of aircraft have fallen through because the documentation was not up-to-date."

An operator's or owner's insurance may also be affected by ignoring service information and continuing airworthiness notices.

HSWA rules

All commercial aircraft operators have responsibilities under the Health and Safety at Work Act 2015.

CAA Principal Advisor of HSWA, Joe Hall, says that such businesses must do everything reasonably practicable to keep themselves, their workers, and anyone else affected by their operation, safe.

"That duty reaches into how equipment is maintained.

"When maintenance documentation is mandatory via an airworthiness directive or some other binding requirement, there's no grey area."

Joe says things get more interesting with advisory and guidance material.

"Service information does not carry the same legal weight as an airworthiness directive.

"However, that does not mean you can simply set them aside. Under HSWA, you're expected to manage risk based on what you know, or reasonably should know, about the hazards in your operation.

"When service information is issued, it's a clear signal that a particular hazard has been identified, and that there are recognised ways of dealing with it."

If something goes wrong after an operator ignores manufacturer service information, they'll have a hard time arguing they have reasonably managed the risks, says Joe.

"The difference is whether the operator actually engaged with the guidance.

"If they've read the information, thought carefully about whether it applied to their situation, and recorded why they took a different approach, they're in a much stronger position than someone who simply 'never got around to it'.

"The takeaway is simple – service information is worth your attention. How you respond to it, and whether you can show that you responded, matters!"

// MORE INFORMATION

Order a free copy of our new *Aircraft maintenance and airworthiness* Good Aviation Practice booklet, go to **aviation.govt.nz/gap**.

Attend a CAA Airworthiness and Maintenance Workshop. To register, go to **aviation.govt.nz/courses**.

Writing an ✓ ACCURATE ✓ HELPFUL TAF

Aerodrome forecasts – known as TAFs[1] – pack a massive amount of information into a few lines. Here's a look at how they're written.

By MetService aviation meteorologist Alwyn Bakker

Meteorologists start writing a TAF by looking at coarse model data (10 to 20km resolution) and satellite imagery. We're working out where features such as fronts and lows are, and how they're likely to move over the forecast period.

Next, we use finer resolution models (800m to 4km resolution) to investigate how those features may affect the airports we're looking after.

Finally, we use a mix of local knowledge, experience, historical data, and rules of thumb to refine our thinking further, until we end up with a story we're happy with.

Along the way, we compare notes with our fellow meteorologists. If conditions are conducive to thunderstorms, we'll discuss timings and probabilities with the specialist thunderstorm forecaster. The severe weather forecaster might have warnings and/or watches out, which may affect our TAFs, especially if significant wind gusts are expected. Fog and low cloud questions go to the lead forecaster, but just as often they'll want *our* input, so it's best for us to come prepared with what we know.

When writing the TAF, it's good practice for us to keep a 'stock' TAF in mind and consider deviations from that. For example, Queenstown Airport will typically start a summer day with a light north-easterly katabatic (cool air flowing down from nearby mountains). A westerly lake breeze will then develop around midday as the land warms up, then that lake breeze will die off in the evening and let the katabatic redevelop overnight.

If it's going to be a particularly warm day, a heat low will form over southern Canterbury, resulting in a brisk southerly from late afternoon, potentially carrying through until well after dark.

If nothing else is expected to happen, then that's my Queenstown TAF done. But if there's a front moving over the region, I need to think about when it will show up, how long it will affect the airport for, and how much moisture it's carrying.

For something moving quickly and not bringing too much moisture, I'd consider occasional showers (TEMPO 7000 SHRA). For something slower and particularly moist, it might be better to describe it as a band of rain (BECMG 6000 RA), with intervals of heavier rain and lower cloud bases (TEMPO 3000 +RA BKN008).

If there are thunderstorms expected, I'll add those in with a 30 percent chance of them occasionally affecting the airport (PROB30 TEMPO 2000 TSRA FEW020CB). If I'm confident the airport will see those thunderstorms, I'll upgrade that to a 40 percent chance (PROB40), or even a straight TEMPO if I'm *really* confident.

The QNH (atmospheric pressure, corrected to mean sea level) and the 2000ft winds are generated automatically from model data. I'll tweak the 2000ft winds if needed, but I won't touch the QNH, as I can't add any value there.

1 They used to be called 'Terminal Aerodrome Forecast' – at some point, the word 'terminal' was dropped but the acronym 'TAF' has stuck.

// The author crafting TAFs for South Island airports. Photo courtesy of MetService.

Keeping it useful

To prevent TAFs from becoming unusable essays, we include only *significant* changes from the weather at the start of the TAF period. For example, we mention a change in wind direction if the change is at least 60° *and* the wind speed before or after is at least 10KT (so going from 330° 5KT to 180° 5KT doesn't count).

For cloud bases, we worry only about cloud layers that are overcast or broken (covering at least five 'eighths' of the sky), and when the cloud base changes between 500ft, 1000ft, and 1500ft (so broken cloud with base lifting from 600ft to 900ft doesn't meet the 'significant' criteria, but the base lifting to 1200ft does).

Visibility has more thresholds but follows similar rules. There are also rules about types of weather phenomena, gusts, timings, and probabilities. If you want to know more, Annex 3 to the Convention on International Civil Aviation has all the information, in exhaustive detail.

It's worth noting that in New Zealand we write our domestic TAFs a little differently to those for our international airports, where complying with Annex 3 is a must.

In the 'main line' of a domestic TAF, information about non-significant weather might be spelled out more clearly (30km visibility and clear sky, rather than the Annex 3 term CAVOK[2]). But from there on, the significant changes are the same, no matter how the airport is categorised.

Keeping it up-to-date

The final part of writing TAFs is monitoring and, if necessary, amending it. We have an in-house program that keeps track of incoming airport weather observations (METARs) and data from our automatic weather stations at airports. It flags anything that's telling a different story to the TAFs, using those thresholds for significant changes.

Sometimes it's a one-off fluctuation, and the TAF shouldn't be amended as the fluctuation likely wouldn't last long enough, such as shallow mist forming around dawn and dissipating within half an hour.

Other times, it gives us a heads-up of when reality is not lining up with the forecast. For example, that a feature is bringing heavier rain than the models were predicting, or a wind change is just not showing up on time, or some fog has rolled in from elsewhere. If so, we'll look at the current conditions (using METARs, pilot reports, ATIS reports, webcams, even phoning ATC in a pinch) and work out what's going to happen next, then issue an amendment.

It must be correct and it must be detailed

Meteorologists walk a tightrope between accuracy and precision. I can write you a perfectly accurate forecast that will be useless because it's not precise enough ("It will rain somewhere in Aotearoa this year"). Or I could write a perfectly precise forecast that will be useless because it is so staggeringly unlikely to be right ("Lightning will strike the Sky Tower at 11.43am on Christmas Day 2026"), or because you'll have to wade through pages of minute-to-minute information to find out whether you can safely land or not.

By sticking to what really matters, a TAF does its job – it tells the aviation system what to watch out for, and when. It gives pilots, planners, and controllers a shared picture of upcoming weather risk without getting lost in unnecessary detail.

That clarity helps everyone plan ahead, make timely calls when conditions change, and keep operations moving safely and smoothly.

// MORE INFORMATION

- Go to **aviation.govt.nz/met.**
- The Good Aviation Practice booklet, *VFR MET* at **aviation.govt.nz/gap**.
- You can order for free the *VFR MET Minima Card* or the recently updated *Weather Card* from **aviation.govt.nz/order**.

2 Ceiling And Visibility OK – CAVOK.

DON'T IGNORE THE CAUTIONARY LIGHT

When a warning light flickers on in the cockpit instrument panel, what's your first instinct?

Some pilots tend to disregard warning lights – but that mindset is problematic, according to Dave Brown, an ASPEQ Flight Examiner and A-cat instructor.

Dave says a student ignored an alternator warning light because, they said, "It happens all the time".

"There was a fault with the left engine alternator that was assumed to be an indication fault," Dave explains.

"The 'L ALTN FAIL' caution kept flicking on and off, along with the amber crew alert CAUTION message, and had been doing so for several days.

"The student neither checked the caution nor cleared the flashing alerter, so it continued to flash for the whole flight.

"Part way through the flight, while in IMC, the 'R ALTN FAIL' caution also came on."

The aircraft flight manual and Quick Reference Handbook (QRH) have the following warning:

WARNING

If both alternators fail at the same time, reduce all electrical equipment to a minimum. Expect battery power to last 30 minutes and land the airplane [sic] as soon as possible. Expect engine stoppage after this period of time.

"So, ignoring these cautions could have left the student with a double engine failure in IMC. That's not something anyone wants to gamble with," Dave says.

Why do pilots ignore alerts?

"Ignoring alerts during training sets a dangerous precedent," says Dave. "The law of primacy tells us that what students learn first, sticks. If they learn to dismiss warnings, they'll carry that habit throughout their careers."

Modern aircraft generate multiple alerts – for example, warnings, cautions, and advisories – and some faults are intermittent, or the fault is with a sensor.

When a warning light pops up every second or third flight and nothing bad happens, pilots start to normalise it. This is sometimes called 'normalised deviance' – or accepting abnormal conditions as normal – because they occur frequently, without immediate consequences.

"This habit of tuning out alerts is dangerous because it blurs the line between what's routine and what's critical," Dave says.

He adds that to break that pattern, pilots need a clear understanding of the different alert levels and what each one demands.

"Checking the alerter whenever it flashes, and knowing the difference between a warning, a caution, and an advisory – and responding correctly every time – is essential for safe operations."

Know your alerts

- Warnings: These are critical alerts that require immediate action. Audio and visual signals persist until the pilot acknowledges them.
- Cautions: These are less urgent, but the pilot still needs to acknowledge them.
- Advisories: These are informational, often listed in system pages.

"Pilots must acknowledge and act, even if the alert seems routine," says Dave.

"Use your QRH and action the checklist for Warnings and Cautions. For example, a terrain clearance warning requires either a visual confirmation and inhibition, or a climb.

"No response to an alert is not an option."

What if it's an 'Acceptable Deferred Defect'?

Some defects and associated cautions are permitted under the Minimum Equipment List (MEL), Dave explains, and should be recorded in the tech log. The MEL sets out what equipment can be inoperative, and any conditions that may still allow a flight to proceed. Warnings cannot be deferred under an MEL.

'Deferred' does not mean ignored – it means managed under strict rules. Even if a caution is deferred, pilots must:

- acknowledge the alert and confirm awareness with crew
- check MEL compliance and apply any restrictions
- monitor the system closely during flight.

What if it's a false alarm?

"Pilots often can't tell if a warning or caution is a false alarm," Dave says.

"That's why it's important to have good technical knowledge of your aircraft, and it's a good idea to keep the QRH and flight manual handy. Always follow procedures and, whether it's a system fault or a real issue, treat every alert seriously."

Key points

Never ignore a warning, caution, or message. Train yourself – and your students, if you're an instructor – to respect alerts, acknowledge them, and follow the checklist actions.

Safety depends on breaking the cycle of normalised deviance.

IMPROVING SAFETY IN MIXED MANNED AND UNMANNED OPERATIONS

All low-level flight operators are reminded to use Flight Advisor to help make sure they're safe.

To improve the safety of low-level flying in uncontrolled airspace, the RNZAF developed Flight Advisor in 2022.

This free-to-use computer application is integrated with AirShare and logs the flights of both manned and unmanned aircraft.

It displays real-time tracking of low-level activities or other potential hazards.

This includes NZDF operations, RPAS flights, NOTAMs, and permanent obstacles such as wires.

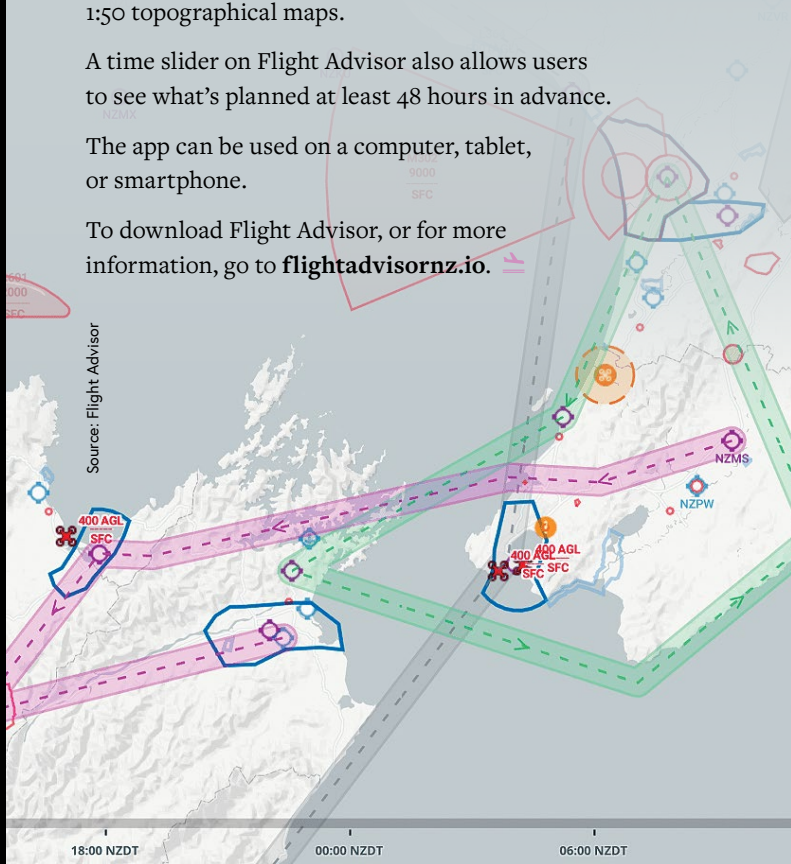
Pilots can also load previously uncharted hazards onto the system.

This information can be presented onto satellite imagery, road maps, visual navigation charts, and 1:50 topographical maps.

A time slider on Flight Advisor also allows users to see what's planned at least 48 hours in advance.

The app can be used on a computer, tablet, or smartphone.

To download Flight Advisor, or for more information, go to **flightadvisornz.io**.



iStock.com/Gerardo Huitron

FLYING WITH MEDICAL ISSUES

How 'letters of conditions' keep pilots in the sky – and safe.

Many pilots worry that declaring a medical condition to the CAA might put an end to their flying.

"The reality is more reassuring," says Claude Preitner, CAA Senior Medical Officer. "The CAA's medical system is designed to help pilots continue to fly safely, not stop them from flying."

Pilots can stay in the air if their risks are properly managed through endorsements, conditions, and restrictions on their medical certificate, and monitoring requirements.

This is the Accredited Medical Conclusion (AMC) process. A favourable AMC allows the CAA to issue a medical certificate to a pilot when they don't meet the standard, but can safely operate under defined conditions (for example, 'extra follow-up' or 'limited operational privileges').

When the CAA applies conditions

The CAA or your medical examiner may apply conditions to your medical certificate because of the following issues:

- A health issue could affect safe flying. This includes anything that might impair alertness, judgement or physical functioning – for example, an asthmatic pilot may be required to carry an inhaler.
- A pilot doesn't fully meet Part 67 standards. Part 67 sets criteria for impairments, including vision, hearing, neurological function, and cardiovascular health. The CAA may still issue a medical certificate with conditions to manage risk when the pilot flies.
- The CAA requires more detailed periodic monitoring for some conditions that, although stable, need regular check-ins (for example, annual cardiology reports, blood tests, medication reviews).

How these conditions appear on a medical certificate

Endorsements printed on the certificate

These fall into two groups:

- Operational endorsements apply directly to how you fly (for example, 'corrective lenses must be worn' or 'not valid for night flying').
- Non-operational endorsements are requirements you must meet during the certificate's validity period, such as medical surveillance or specialist follow-up. These are generally referred to on the certificate and detailed in a separate letter.

Shortened medical certificate validity

The CAA can issue a pilot with a medical certificate lasting for a shorter period than the maximum permitted, with specific notes or conditions on it. The pilot's health can be checked again sooner to make sure they remain stable and safe to fly.

Compliance considerations

"A pilot must comply with all the conditions, restrictions, and endorsements on their medical certificate," Claude says.

"If any of the conditions attached to the medical certificate aren't met, the pilot can't legally fly – even if the certificate is still within its validity period."

Pilots must also tell the CAA about any change in their medical condition that may affect safety, and they must pause flying until the matter is resolved. This requirement applies if they know or suspect they have a 'new' condition, or notice a change to an existing condition, such as new symptoms or an increase in their severity or frequency.

The only exceptions are medical conditions that clearly fit one of the specific exemptions in the CAA's *General Directions Exceptions for Temporary Medical Conditions*. These are minor, short-term issues that meet all the listed 'acceptable characteristics for non-reporting' for that condition.

For example, mild hay fever – causing only occasional sneezing, no eye irritation, sinus or ear blockage, and no breathing problems – doesn't need to be reported.

Other common examples*

Diabetes

John is diabetic, the side effects of which can impair him if he doesn't manage his condition, presenting a risk when he pilots an aircraft. He manages his condition without using insulin.

His medical certificate may still be issued for 12 months, but a certificate of surveillance is also issued requiring specific three-monthly checks to make sure his diabetes remains stable through the certification period.

Sleep disorder

Andrew has moderately severe obstructive sleep apnoea (his breathing repeatedly stops and starts when he sleeps). This results in fatigue that is a significant risk to aviation safety.

Certification is only possible if he regularly sleeps using a medical device that delivers a steady stream of pressurised air through a mask to keep his airways open.

He must also demonstrate compliance by supplying the CAA with regular data downloads from the device (usually every three months).

Heart condition

Maia suffered a heart attack and she has a residual risky heart impairment. This creates an unacceptable level of risk for solo pilot operations.

The CAA may mitigate this by applying a multi-crew restriction when she carries passengers, meaning she may fly only as part of a crew, so there are always two pilots at the controls.

A restriction 'not valid for air operations carrying passengers' may be imposed on the Class 1 certificate, allowing her to return to restricted flying operations.

Challenging a medical decision

If you want a review of a CAA medical decision, you can:

- within 20 working days of the decision to decline, or impose a condition or restriction on a medical certificate, seek a free review by the convener of certain decisions. The convener is an independent specialist appointed by the Minister of Transport.
- provide new medical evidence (for example, specialist reports) to satisfy the specific concern – this is the basis on which AMCs and endorsements can be adjusted.

Contact **med@caa.govt.nz** if you have questions.

// MORE INFORMATION

Download or request a printed copy of the *Medical matters* Good Aviation Practice booklet at **aviation.govt.nz/gap**.

Also read "A new way to report health conditions – Introducing Safe Haven" (*Vector*, Summer 2024) at **aviation.govt.nz/vector**.

Go to **safehaven.kiwi** to read more about this new programme.

* These are all common examples in aviation, but the people named are fictitious.

SAFETY AROUND STATIONARY AIRCRAFT

Even when an aircraft is parked and the engine is off, the hazards are real. Adding people – and animals – into the mix can create a recipe for serious injuries and worse.

iStock.com/Mystockimages

A recreational flight in Canterbury turned exceptionally dangerous when the passenger got out of the stationary aircraft to open a farm gate.

Because the three-wheeled aircraft had landed on a slope on a farm track, the pilot kept the engine running to prevent the plane tipping backwards.

“I asked my friend to get out and open the gate up ahead, so we could get to the flat area and take a break,” the pilot says.

“She’d done it before, and maybe because of that, this time she got out and went straight in the direction of the propeller.

“I let out the biggest scream you can imagine. It was a terrible feeling, as if everything was happening in slow motion.

“Fortunately, the propeller didn’t strike her. I taxied up the hill after she opened the gate and signalled her to meet me at the top.

“We talked about it. She knew there was a propeller there, but she instinctively headed straight towards the gate as if she’d just jumped out of a ute – something she’s done thousands of times.

“There was also a bit of time pressure because there were two other aircraft following us on the trip, waiting to land. She was mortified and shocked when she realised what had nearly happened.”

The pilot says because they were landing on a farm track and not a designated airfield or airstrip, there were “a whole bunch of unknowns” for which he had not prepared.

It hadn’t occurred to him that landing on a slope would mean he had to keep the engine running so the aircraft stayed upright.

And he says he should have briefed his friend to exit the aircraft and walk towards the wing, outside the propeller arc, before heading for the gate.

Good airmanship on the ground

Passengers, visitors, tourists, and photographers are often unfamiliar with the dangers of being around aircraft, so they must be kept safe.

“We’re talking about pilot responsibility here,” says CAA Aviation Safety Advisor Carlton Campbell. “Effective safety around stationary aircraft is good airmanship on the ground.

“This means planning and briefing tasks, acting predictably, communicating clearly, and maintaining situational awareness to prevent conflicts and keep everyone safe.”

Propellers and tail rotors

People moving around a stationary aircraft who are unfamiliar with the environment can struggle to judge the visibility and reach of propellers when they’re in motion. Tail rotors can be even harder to detect and can send loose objects flying.

Carlton’s advice to pilots is straightforward.

“Escort your people and, if you see someone in the area who’s unescorted – even if they’re not with your group – be prepared to step up and make sure they’re appropriately guided. They may not be aware of the risks.”

An unrestrained dog around aircraft is another common occurrence that’s dangerous for people, and the animal itself.

Dogs shouldn’t be on the apron, but it’s surprisingly common for airport personnel to bring their dogs with them. Problems can arise when less well-controlled, off-leash dogs decide to go exploring in a manoeuvring area. Pilots should look out for this.

Preventing aircraft movement

Parked aircraft can, and do, move unexpectedly. Wind, uneven surfaces, and loose chocks can all contribute to an aircraft rolling or making unintended contact with people, animals, vehicles, and buildings.

To mitigate the risk, set the brakes properly and insert control locks, chocks, and tie-downs suited to the conditions.

Aircraft should be moved using approved push points or a towbar, which helps prevent both structural damage and sudden, unpredictable movements.

Rushing and complacency

Sometimes the hazard around the stationary aircraft isn’t physical, but stems from humans being human, such as being in a hurry and slipping into comfortable routines, which fail to anticipate danger.

This can arise from simple incidents, such as a person’s hat blowing off as they approach the aircraft. The person reacts, rushes to catch it, and runs the risk of making contact with a spinning propeller they don’t see. As the pilot at the centre of our story advises, “Never assume someone is going to do what you expect them to do.”

The key takeaway

Pilots are always responsible for their passengers, and anyone else moving around, whenever they’re in a manoeuvring area.

THE TRAP OF EXPERIENCE

With experience in aviation comes wisdom. But experience does not guarantee safety.

The people involved in the accidents described here were skilled, experienced aviators. Their loss is still deeply felt by families and colleagues. These examples are included here only to help all pilots better recognise how human factors can quietly erode safety, even among expert aviators.

In March 2015, a Cessna 185B Skywagon departed Wānaka, VFR for a country station near Coronet Peak.

In the front seat were two pilots with more than 10,000 hours' flying experience between them. Both were trained and experienced mountain flyers. One of the pilots had just attended an AvKiwi weather seminar.

Despite this experience, the MetService forecast wasn't checked before departure. After take-off, the aircraft encountered poor weather conditions.

None of the four occupants in the aircraft survived the subsequent impact with a valley spur, as the Cessna turned away from the deteriorating weather.

The CAA report noted that, as the pilots were only 10 minutes from their destination, a certain amount of plan continuation bias[1] was likely involved.

"Inexplicable"?

In 2015, *Vector* argued this accident was "inexplicable". But A-cat and Director of Dragonflight Aviation, Penny Mackay, says there's a phenomenon which she calls the "trap of experience".

"Sometimes I've had to talk myself out of risky behaviour with low flying in mountainous terrain, or pushing a weather window.

"The temptation is there *because* I'm pretty experienced and have never had an accident. Therefore, I think that with my experience I can get away with it.

"I've never done this with a student, but sometimes by myself I've definitely had moments where I'm arguing about whether to push things."

Penny says there are pilots with much more experience than her who've done the same thing.

"Some of them tell me about their risky behaviour. If you asked them they'd probably admit to it.

"Not all of them are still here to talk about it though."

1 We all use 'biases' or rules of thumb to quickly judge a situation or make decisions. Biases enable the brain to shortcut the processing of information. For instance, at a supermarket we don't stand for ages taking in information about each product – we usually grab the one we've used before. But such shortcuts can also lead to errors in decision-making or judgement. 'Get-there-itis' is another name for plan continuation bias. The Australian Transport Safety Bureau regards this as a major hazard to safety, because it pressures pilots to get to their destination, despite changing conditions.

Photo: CAA

Sense of invulnerability

Max Stevens, Executive Officer of Gliding New Zealand, says if a pilot isn't current, even an experienced one may not survive their mistakes.

"Get-there-itis and overconfidence are also common among glider competition flyers.

"It contributes to a sense of invulnerability among experienced pilots."

Martyn Cook, National Operations Officer of Gliding New Zealand, says the trap of experience was a factor in a fatal accident in 2022, involving an experienced tow pilot and an experienced glider pilot at Feilding.

During the take-off roll, the glider wing contacted the ground, leaving the glider out of position. As the glider attempted to correct, the tow rope de-tensioned.

As the tow rope quickly re-tensioned, the glider appeared to kite up, causing a lateral high upset of the tow plane. The result was an uncommanded yaw, roll, and nose pitch down of the tow plane. It was unable to regain control in the height available and crashed, the tow pilot later succumbing to his injuries.

The glider was able to land safely because the tow rope broke under the stress caused it by the diverging aircraft.

The report into the accident noted that both expectation bias[2] and plan continuation bias were likely involved. It said, "It is likely that the glider pilot continued with the plan rather than release from the tow plane due to his expectation that he could safely recover the situation and continue on to achieve the intended aims of his flight."

Martyn says this accident demonstrates that if a pilot has performed a task successfully again and again, it can be hard for them to recognise an emergency if it does occur.

"It also shows how experience can be a trap, where the seriousness of the potential hazards is lost.

"It's then difficult for a pilot to 'flip the switch' into emergency manoeuvres."

Alaska White, CAA Principal Advisor of Human Factors, agrees.

"Pilot experience can lead directly to both confirmation bias and plan continuation bias.

"If those biases go unchecked and unchallenged, the pilot might disregard their instruments, the forecast, or any other warnings and cautions.

"Maybe they've done this thing before, or watched someone else do it, and it seemingly worked out okay."

Breaking the rules

A 1985 study showed that US Navy pilots over the age of 38 had accidents, due to loss of control, at a rate of 0.75 per 100,000 flight hours. However, accidents due to *regulation violations* in that age bracket occurred at a rate of 3.25 per 100,000 flight hours.

In comparison, a younger cohort, 26-year-olds, scored much higher in loss of control accidents. Their rates were 2.25 per 100,000 flight hours.

However, their accidents due to regulation violations were just 0.5 per 100,000 hours, showing that older pilots were more likely overall to have an accident.

Penny Mackay says accidents involving older pilots tend to be caused either by procedural errors, inadequate flight preparation, or regulation violations.

"Higher levels of experience can lead to ego and impulsivity. It's really prominent among older pilots.

"But no one is bullet-proof."

Alaska White says experienced pilots can often overestimate their abilities.

"At the same time, they'll underestimate just how formidable and unforgiving New Zealand's meteorological conditions can be.

"Pilots need to have an honest conversation with themselves – and others – about how easily these biases can affect judgement and decision-making."

2 According to SKYbrary, expectation bias is a term to describe a pilot hearing or seeing something they expect to hear or see, rather than what actually may be occurring. It's often driven by experience or repetition.

IT'S **REGISTRATION FEE** AND **PARTICIPATION LEVY** INVOICE TIME AGAIN

If you're an aircraft owner, you'll soon receive an invoice, dated 1 July 2026, for the annual registration fee and participation levy.

Are you changing, selling, or purchasing an aircraft?

If so, make sure:

- you've completed and signed the change of possession application form
- you've paid the application fee
- that the application has been actioned by us.

Do this before the invoicing date of 1 July 2026, because the invoice must be paid by whoever is the registered owner as at 1 July.

Please include the requirement to pay the fee and levy in your sale and purchase negotiations. Non-payment may result in your aircraft being de-registered.

Is your aircraft damaged, or under restoration or maintenance?

If your aircraft is under maintenance or repair for more than three months from 1 July 2026, you can request that the participation levy be deferred.

Please complete form 24047/13 or email **aircraftregistrar@caa.govt.nz**. The aircraft will remain registered, and you'll be charged only the annual registration fee. The aircraft must not fly while the participation levy is deferred.

Is your aircraft damaged, no longer airworthy, or you're exporting it?

Please complete form 24047/05 *Part 47 notice to deregister an aircraft* and submit it to us to remove the aircraft from the register before 31 July 2026.

If it's deregistered after this date, the invoice for the levy and fee must still be paid.

To find both forms, go to **aviation.govt.nz/forms**. Any questions, email **aircraftregistrar@caa.govt.nz**.

To find out more, go to **aviation.govt.nz/fees**.

Letter to *Vector*

Is there a pilot in that cockpit?

Thank you for the *Vector* – Autumn 2026 edition.

The photo on the front cover is to be congratulated. If I owned a Cessna, I would want that picture on my wall.

But my perception is that this aircraft has its motor running and has no pilot in attendance. I was taught this is a safety violation.

But for all I know, the plane may have been tied down and there was a pilot on board (they just ducked down) but that is not what I perceived.

However, your magazine has a strong safety bias and to include this photo (and the perception it generates) alongside headings of "Flying now feels safer" and "Safety isn't static" just does not sit right with me.

Keep up the good work.

Creagh Robinson
Christchurch

Response from *Vector*

Thank you Creagh for your eagle eyes! This is a commercial stock photo so our team doesn't know whether there was a pilot on board but not able to be seen, or if there was no pilot on board, which as you point out, would be a breach of pilot-in-command safety duties.

We chose the pic because, in our opinion, it's an attention-grabber, and more likely to encourage readers to open up the magazine and review the articles inside.

But, yes, we most certainly don't wish to imply that the pic reflects any okay-ness with a running engine and an empty cockpit!

Vector notices

OCCURRENCES DASHBOARD

These are the number and type of occurrences reported to the CAA, 1 January 2026 to 31 March 2026 (Q1) compared with 1 January 2025 to 31 March 2025.

Occurrence type

Aerodrome incident
Q1 2025: 49 | Q1 2026: 145 ↑

Aircraft accident
Q1 2025: 8 | Q1 2026: 44 ↑

Airspace incident
Q1 2025: 773 | Q1 2026: 612 ↓

Aviation-related concern
Q1 2025: 448 | Q1 2026: 423 ↓

Bird strike
Q1 2025: 515 | Q1 2026: 490 ↓

Dangerous goods
Q1 2025: 17 | Q1 2026: 17 –

Defect
Q1 2025: 137 | Q1 2026: 176 ↑

Hang glider accident
Q1 2025: 16 | Q1 2026: 4 ↓
(4 paraglider accidents Q1 2026)

Navigation installation occurrence
(for example, a transmitter failure)
Q1 2025: 4 | Q1 2026: 1 ↓

Operational incident
(for example, encountering severe icing)
Q1 2025: 499 | Q1 2026: 561 ↑

Parachute accident
Q1 2025: 1 | Q1 2026: 0 ↓

Promulgated information occurrence
(for example, inaccurate weather information)
Q1 2025: 5 | Q1 2026: 13 ↑

Total occurrences
Q1 2025: 2472 | Q1 2026: 2486 ↑

The number of occurrences in each category sometimes increases after we publish each dashboard. That's because some occurrences from that quarter are reported after the quarter ends.

Want to dive into these stats even further? Head to **aviation.govt.nz/dashboard** to check out our occurrence and activity dashboard for details on occurrence rates, trends, aircraft activity, and more.

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 – Airworthiness, South Island
027 269 5796 / richard.lane@caa.govt.nz

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

INTRODUCING NEW ASA SCOTTY BOOTH

Whangārei-based Scotty Booth has been appointed the CAA's new Aviation Safety Advisor for North Island flight operations.

Scotty brings to the role 30 years of aviation experience, including becoming a B-cat (H) and founding Twin Coast Helicopters, carrying out Part 135 and 137 operations.

He's looking forward to his new role as a 'bridge' between the flying community and the CAA.

"Communication is everything. I want to share with the CAA what I'm seeing and hearing in the field, and I want to help participants understand how to stay on the right side of rules and requirements."

Having recently owned an aviation business, Scotty will be able to offer insights to the CAA into current operating pressures.

"Between parts shortages, rising fuel costs, and other increasing expenses, they are really difficult conditions right now. I'm particularly concerned about the impact on operators' mental wellbeing, and I want to help the CAA better understand how massive that is."

Scotty is at **scotty.booth@caa.govt.nz** or **027 222 8136**.

ACCIDENT BRIEFS

We're updating accident briefs and defect reports on our website. For now, go to **aviation.govt.nz/dashboard**.

Robinson R44 II

Date and time:	29/09/2024 at 10:25
Location:	Albury
POB:	1
Damage:	Major
Nature of flight:	Agricultural

The pilot was conducting weed spraying operations over farmland that contained two sets of powerlines running through the spray area. While following a hill with pine trees on one side, the pilot lost sight of the powerlines. As the aircraft came over the top of the hill, the wires came back into view but could not be avoided.

The helicopter's main rotor struck and severed two of the lines, causing irreparable damage to the rotor blades, and the spray boom was also damaged. Despite this, the pilot maintained control of the aircraft and carried out a safe landing beyond the point of impact.

This accident highlights the importance of thorough pre-work safety checks, including reconnaissance flights in unfamiliar areas or locations where boundaries and hazards may be uncertain. A detailed understanding of the work area not only ensures job boundaries are clear, but also increases a pilot's capacity to manage risks and maintain awareness of obstacles such as powerlines.

Relevant *Vector* articles:

- Autumn 2019 – 'Be wire aware'
- Winter 2021 – 'It's all on the line' and 'Spot the wire'
- Spring 2021 – 'Anti-wire strike tech'

CAA occurrence number 24/8847

Cessna U206G

Date and time:	18/11/2024 at 13:42
Location:	Clarence River
POB:	1
Damage:	Minor
Nature of flight:	Private other

Shortly after take-off while the pilot was reducing power and pulling the propeller lever back, the aircraft experienced a drop in manifold pressure and engine speed (down to 1500-1800RPM). Believing the aircraft was unlikely to make the 8KM flight to the nearest airfield, they chose to land at an obstacle free landing spot on the riverbed.

On landing, the aircraft's nose hit soft ground, causing the propeller to hit the ground as it was still rotating. The pilot was uninjured, but the aircraft sustained engine and propeller damage due to the power loss and subsequent low speed propeller strike in the shingle on the riverbed.

The aircraft's engine was replaced, but other than replacing the fuel tank vents, the maintenance investigation identified no further issues with the aircraft.

CAA occurrence number 24/8907

Robinson R22 Beta

Date and time:	30/01/2025 at 11:57
Location:	Mount Pisa
POB:	2
Damage:	Substantial
Nature of flight:	Training dual

On final approach to a hilltop landing site, it became evident the aircraft was going to fall short. An overshoot was not a viable option and the terrain was assessed as too steep to put the aircraft down. The instructor took over and attempted to fly away. The aircraft touched down lightly, twice, before a third contact on undulating ground caused it to nose over and roll. The aircraft came to rest with its right side nose uphill.

A participant-led investigation found the root cause of the accident to be distraction. The purpose of the training flight was altered at the last minute, causing distraction in decision-making when choosing where to land. Communication between instructor and student pilot also played a factor and highlights the importance of discussing when it is appropriate to fly away from the approach, especially during high risk conditions.

CAA occurrence number 25/371

REPORT SAFETY AND SECURITY CONCERNS

Report your aviation-related safety or security concern at **aviation.govt.nz/report**.
Or email **triage@caa.govt.nz**.

The CAA's safety reports are at **aviation.govt.nz/safety-reports**.

ACCIDENT NOTIFICATION

24-hour 7-day toll-free telephone

0508 ACCIDENT (0508 222 433)
aviation.govt.nz/report

GA DEFECTS

We're updating accident briefs and defect reports on our website. For now, go to **aviation.govt.nz/dashboard**.

KEY TO ABBREVIATIONS:

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

McDonnell Douglas 369E

Main rotor head strap pack

Part manufacturer:	MD Helicopters
Part number:	369D21200-503
Part serial number:	7604-2822
TSI hours:	519.40
TSO hours:	13204.85

During a routine maintenance inspection, the main rotor head strap pack was found to contain three broken straps. This defect had not been apparent before a ferry flight to maintenance. The manufacturer was notified of the issue.

CAA occurrence number 24/9105

Airbus Helicopters EC 130 T2

Main gearbox

TSI hours:	321.6

During inspection of the main gearbox (MGB) and mast area, an oil leak was identified. After removal of the mast assembly, corrosion was discovered on the flange of the MGB upper housing. The MGB had only been in service for 321.6 hours, with a factory date of manufacture of 21/09/2020. The manufacturer issued repair instruction RDAS EC130 63 2024 3742A.

CAA occurrence number 24/9127

McDonnell Douglas 500N

Over-running clutch

During the scheduled 300-hour inspection of the over-running clutch, two assembly discrepancies were identified. The first involved incorrect shimming of the 369H5660 coupling, which is required to provide sufficient, but not excessive, clamp up of the NAS1593 017 o-ring. The o-ring was found shredded, and the step between the coupling and inner race, as specified in CSP HMI 2 63 10 00 *Removal/Installation 6B*, measured less than the minimum requirement of 0.035 inches. No loss of oil was observed.

Further disassembly revealed that the 369A5367 sleeve spacer had been installed inverted, with the flange positioned underneath the nut and against the 369A5362 bearing.

CAA occurrence number 25/1155

Aerospatiale AS 355 F1

Fuel tank gasket

ATA chapter:	2800

A major fuel leak was identified from the rear tank after its contents emptied onto the hangar floor. The maintenance organisation found that the tank seal had split and become extruded. The aft fuel pump and fuel tank seal were replaced.

Three days later, on landing, the pilot identified a significant fuel leak coming from the aircraft's belly. Investigation by the maintenance organisation again found the seal had extruded. A technical request was submitted to Airbus, who advised that the seal must be installed dry in accordance with the installation instructions. After installing the seal dry, sealant was then applied as specified. Since applying this method, no further fuel leaks have occurred.

CAA occurrence number 24/9294 and 25/285

Schempp-Hirth Arcus M

Big end bearing

Part manufacturer:	Solo
TSI cycles:	323
TSI hours:	66
TSO hours:	66

During flight, the engine RPM dropped rapidly from 6200 to 4000 within a few seconds. The pilot switched to the redundancy system in an attempt to restore power, but the engine stopped almost immediately. The propeller remained fixed in the 3 o'clock/9 o'clock position. To improve glide performance, the pilot partially lowered the engine pylon and successfully glided back to the airfield.

Once on the ground, the initial maintenance investigation found that the crankshaft could only be rotated approximately 20 degrees. Based on the limited movement and symptoms observed, it was suspected that the defective component was the big end bearing.

CAA occurrence number 25/197

GAP
Good Aviation Practice

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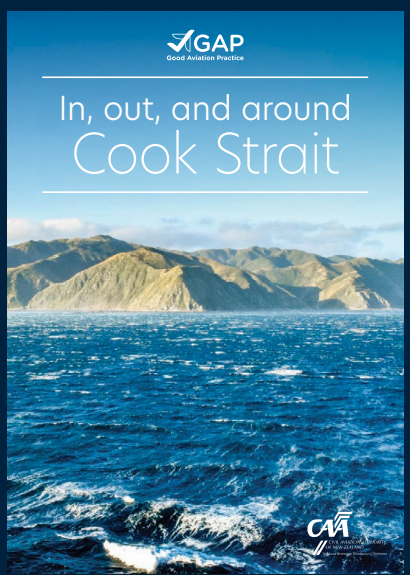

In, out, and around Cook Strait

This GAP booklet introduces pilots to the journey through this complex airspace.

Changeable, sometimes turbulent, winds and mountain wave conditions from Kaikōura to Paraparaumu can challenge even seasoned pilots.

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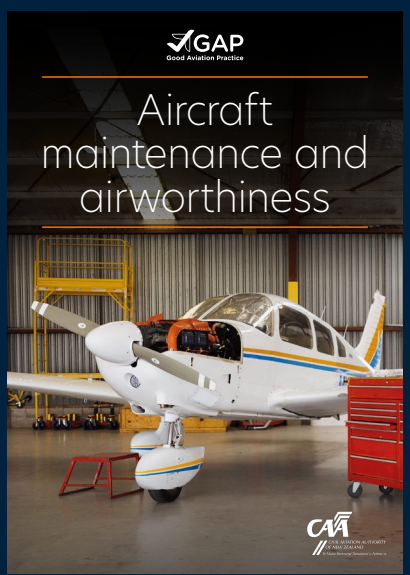
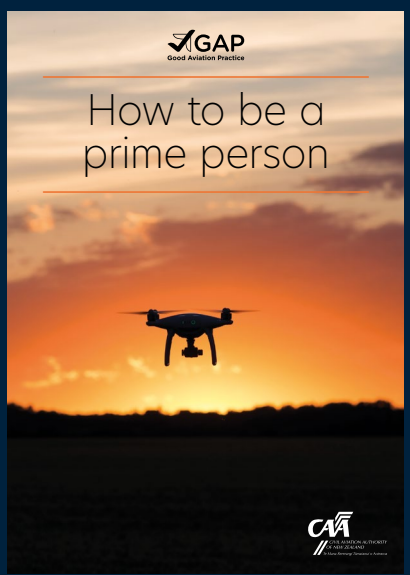


Aircraft maintenance and airworthiness

It's not just about complying with civil aviation rules – aircraft maintenance and airworthiness are vital to making sure crew, passengers, and those on the ground are safe.

This GAP booklet provides some easily readable guidance on some key requirements you need to know.

It's launching later this month, so order your free copy at **aviation.govt.nz/gap**, or download it.



How to be a prime person

Every Part 102 *Unmanned Aircraft Operator Certification* organisation must have in its senior leadership line-up, a 'prime person'. This is the unmanned operations equivalent to a senior person in manned operations.

The role is rewarding, but demanding. Do you have the experience, skills, and commitment, including time, to carry out this role successfully?

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