

# vector

## SPOT THE WIRES

It's all on  
the line

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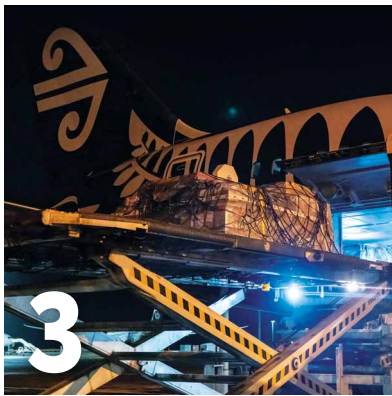
Building a  
security  
culture

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RACAs and  
quality  
assurance

Unite  
against  
COVID-19

**CMA**  
CIVIL AVIATION AUTHORITY  
OF NEW ZEALAND  
Te Mana Rauerangi, Tamatani o Aotearoa



**// RACAs AND QUALITY ASSURANCE**



**// IT'S ALL ON THE LINE**



**// BUILDING A SECURITY CULTURE**

Cover photo: Marlborough Lines Limited wires at French Pass. Photo courtesy of Matt Morris-Jenkins. Two wire strikes in two days last December highlight that they continue to be a real risk to agricultural pilots. The strikes often happen to pilots who know the wires are there. See our two stories on pages 6 and 15.

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# RACAs AND QUALITY ASSURANCE

It's a good business decision for a regulated air cargo agent to ensure, through quality assurance, that their supply chain is robust. That's because, while QA is about security and safety, it's also about reputation and profits.

The COVID-19 pandemic has highlighted how indispensable our air exports are to New Zealand and how vital, therefore, the security of our supply chains is.

The regulated air cargo agent is a key component in those supply chains, making sure all cargo leaving New Zealand is made safe for flight and kept secure.

And it's the agent who must make sure things are running reliably.

A quality assurance system does this. It sets a procedure for identifying and monitoring problems, and importantly, helps to prevent problems before they happen.

The reliability that QA gives the security supply chain system means the system works effectively and satisfies the needs of stakeholders within that chain. Known customers<sup>1</sup>, cartage companies, regulated air cargo agents, cargo terminal operators, and airlines all benefit greatly from a reliable and secure system. »

<sup>1</sup> A known customer is "a shipper of cargo or mail who has an established association with a regulated air cargo agent or an air operator for the carriage of the shipper's cargo or mail by air and who is registered with the regulated air cargo agent or the air operator". Part 1



» “Quality assurance cannot guarantee there will never be any surprises because the system is affected by outside factors,” says CAA aviation security technical specialist Kevin Jackson. “But it does provide a mechanism to better deal with unplanned events.

“It also adds value to an agent’s business. A system that’s reliable and secure, satisfying stakeholders and generating confidence is, by its very nature, one that’s cost-effective.

“A RACA requires certification, training, and security checks, and there’s a cost associated with those. But if that RACA’s system is effective – and stakeholders (including the CAA) are satisfied with, and confident of that effectiveness – that cost starts to look like good value for money. And the long-term and ongoing compliance cost may be even less due to the efficiencies you gain.”

### It doesn’t have to be complex

Despite its many benefits – and the requirement for a RACA to have an effective QA system now well entrenched in regulation – there are still RACAs struggling with quality assurance.

When they read rule 109.69 *Internal quality assurance*, some small businesses may feel overwhelmed by what they think is required.

But the requirements of that rule are aimed at large as well as small businesses, and smaller businesses can adapt the expectations of 109.69 to suit their own operation. The CAA certainly doesn’t have a one-size-fits-all mentality. It has a risk-based approach and is interested only that your QA is effective for your operation.

Some RACAs may employ an outside contractor to draw up a quality assurance process for them.

In that situation, the agent needs to ensure the outside party thoroughly understands their business.

The resulting QA process written for the agent must be written specifically for that business and it needs to be workable at a day-to-day level.

But if you’re creating your own QA, Kevin says there’s no need to reinvent the wheel if you’re carrying out QA for another agency, say, around health and safety.

“More and more small businesses are having to carry out QA of some kind for other government agencies or to meet the requirements of the Ministry for Primary Industries (MPI).

“So there are opportunities for you to take advantage of the QA system used in other parts of the business. If, for instance, you’re carrying out quality assurance of your staff for MPI – are they trained, are they authorised, are they competent – there will be crossovers in that with the CAA.

“As long as they have ‘an acceptable means of compliance’, the CAA is absolutely open to RACAs coming up with their own ways of carrying out quality assurance providing they can satisfy us of the system’s effectiveness.

“‘Leveraging’ QA for one agency with that for the CAA is maybe one of those ways,” says Kevin.

### What does ‘not complex’ look like?

Establishing and maintaining a robust QA programme doesn’t have to be arduous.

Kevin says each element in a QA system can be tailored in complexity to suit the needs of smaller (or larger) businesses.

“‘Policy’, for instance, is a simple and accurate statement about what the organisation intends to do about its quality assurance. It certainly does not have to be hugely wordy.

**// A system that’s reliable and secure, satisfying stakeholders and generating confidence is, by its very nature, one that’s cost-effective. //**



✓ Quality assurance cannot guarantee there will never be any surprises because the system is affected by outside factors. But it does provide a mechanism to better deal with unplanned events.

“People also tend to over-think ‘quality indicators’. They’re simply bits and pieces you can look at to see how your whole system is going. For example, you could use staff feedback on a form you’ve designed and put in place for checking products. If staff say it’s overly complicated, that’s useful information, because you can engage with your staff to produce a form that better reflects your company’s way of working.

“If your customers are saying the process they undergo with your business to become a known customer is overly complex, you would look at that again.

“If you analyse your incidents, they too will tell you if your processes and procedures are – or aren’t – working.”

Kevin says that despite the important sounding names, all that ‘preventative’ and ‘corrective’ actions involve, is either sorting out something that’s gone wrong, or sorting out something that could go wrong.

“You identify what the problem is, you do a causal analysis to identify an action that will fix it or prevent it from happening. You make someone responsible for getting it done. Then you come back later to make sure it’s fixed.”

Kevin says the approach RACAs take to their internal audit programme is up to them. The organisation might do one audit each year or do one element a month.

“Looking at known customers this month, then looking at training next, for instance,” he says.

The management review is also straightforward. “Once a year, look back over the whole process to see what it’s telling you, if anything. Do you need to change the way you do something, or need to change your exposition?”

It’s worth bearing in mind that quality assurance doesn’t expect everything to go perfectly all the time. What it does do is generate confidence in a system because it can anticipate potential issues, resolve problems so they don’t recur, and provide a mechanism for feeding questions and comments back to those who have the power to effect change.

### The other side of the coin

Kevin says the opposite – a lack of coherence in quality assurance – risks the reliability of the supply chain system, possibly even leading to a security incident.

“The cost to an agent’s reputation and business, if it’s a serious security incident, could overwhelm it, forcing it to stop operations.

“But the damage may not stop with the individual agent. It’s also worth thinking about the harm a serious security incident could do to the public or the country’s international reputation, and what we could all lose if confidence in the country as a trading nation was eroded.” 📉

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# IT'S ALL ON THE LINE



*Vector* spoke to a member of our CAA team about his personal wire strike story. We hope this personal account contributes to wire strike awareness.



// This is the BO-105 helicopter that Adrian Parker was piloting, after it hit wires during a police chase of an armed carjacker. It's difficult to believe anyone could have survived such a catastrophic wire strike, but both Adrian and his crewman did. In Adrian's case, just.

**F**ormer helicopter pilot Adrian Parker keeps a photo album in his desk to remind him of the day his ‘first life’ ended – the day he lost his medical, broke his back, and wound up in a coma.

In his ‘second life’, Adrian – who’s with the CAA’s monitoring and inspection team – has taken up the cause of wire strike awareness.

Having experienced it himself, he’s passionate about preventing others (and their families) suffering the trauma and consequences of a serious accident.

In 1997 Adrian was living in his homeland of South Africa, flying a police BO-105. The day’s operation was a challenging low-level operation at short notice – the pursuit of an armed carjacker.

Such ops were stressful and challenging. Offenders’ vehicles would sometimes reach 250 km/hr, and Adrian was regularly shot at.

Adrian knew there were high-tension wires in the area of the pursuit, so kept an eye out for them.

But it was a smaller, closer set of wires his helicopter collided with, nearly ripping the rugged German helicopter apart.

“Don’t assume that because you’ve seen lines, there isn’t another set before or even after,” he says.

Adrian doesn’t remember the accident, but the memories of his long, painful recovery and the toll the accident took on his family and friends is all too real. So too was the reality that the accident had ended his flying career.

### Advice from the front line

Adrian now encourages operators to equip wire cutter kits on helicopters routinely flying at low levels. Although wire cutters would not have prevented his accident, Adrian says they would have sliced through the wires and the machine would have been in a state to land safely.

He has also advocated for good personal protective equipment for helicopter crews, long before the term PPE became a COVID-19 buzzword. On the day of his accident, Adrian was wearing his own personal helmet, and knows he wouldn’t be alive if he hadn’t been.

When asked for his advice to other helicopter pilots working low-level ops, Adrian returns to an old saying he picked up in his early flying days – “There’s nothing more useless than the sky above you, so step it up a bit”.

**// Don’t assume that because you’ve seen lines, there isn’t another set before or even after. //**

He encourages pilots to conduct a high-low recce whenever they can, and to get solid up-to-date information about wire (and other) hazards before working the job.

“If you’re unhappy with that information, do your own assessment with the ground crew. Never be pressured into a job and throw caution to the wind,” he says.

“Take the necessary action to prevent risk, and have the necessary PPE and equipment.

“It costs money, but in the end it could very well save your life – and money – if something does go pear-shaped.”

### Why pilots fail to see wires they know are there

The Australian Transport Safety Bureau says in 70 percent of wire strike occurrences, the pilot knew the wire was there. These strikes are believed to be likely due to a combination of factors, including poor visual perception as well as factors like ‘inattentive blindness’ (see below).

The issue of experienced, competent pilots colliding with wires over land they know well has also played on the mind of Matt Harris, the CAA’s chief advisor on human factors.

In his former role as a safety investigator, Matt led the investigation into a fatal wire strike in 2016. Through that investigation and his human factors work, Matt’s considered what elements might contribute to pilots colliding with wires they know about.

One of the explanations for failing to see wires – even ones we know exist – the phenomenon of inattentive blindness. This is our inability to perceive something in plain sight, because we’re paying attention to something else. »

# // If you're coming in and you're not sure of where the wires are, gain altitude, get out of there and confirm where the wires are. //

» “We cannot focus on everything all the time,” says Matt. “Our attentional resources are limited. When we’re completing high-focus flying such as low-level operations (where wires and obstacles are), including take-off and landing, our ability to pay attention to everything we need to is reduced.

“The more complex the operation and the more attentional resource is dedicated to the task at hand, the more we’re inclined not to see something that may appear in our scan.”

## Maintaining situational awareness when the plan changes

Given how hard it is to see wires at the best of times, it’s important pilots continue to build and update their mental picture of the hazards as they work the job.

CAA investigator Jason Frost-Evans says pilots could actively decide how to avoid wires – or other hazards – that they’ve already identified.

“You won’t then have to rely on remembering where they are.

“This could include, for example, approaching from a certain direction to be able to see and avoid wires, flying over the top of structures that you can see, if you can’t see the wires, or picking other landmarks you can use as boundaries to avoid wires.”

Matt says plans do change from time to time, so when they do it’s important to give yourself the time to update your knowledge of the conditions and other factors, and understanding of the hazards as they apply to your new plan.

“If you’re coming in and you’re not sure of where the wires are, gain altitude, get out of there and confirm where the wires are. Then you can reassess your approach.” ➤

// Adrian Parker holding the helmet that saved his life and a piece of the wire that almost took it. The abrasion on the helmet was where the wire made contact.



Photo CAA/Blake Crayton-Brown

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Comments or queries? Want to share your wire strike story? Email [vector@caa.govt.nz](mailto:vector@caa.govt.nz)



# A REMINDER ABOUT CARRYING GOODS

Goods must be secure, immobile, and passengers protected from any sharp edges.

## Baggage

Simple items, such as cameras, placed on the aircraft cabin floor have caused accidents, incidents and near misses by later moving in flight and interfering with flight controls – or worse, causing the loss of control of the aircraft.

Before take-off or landing, all carry-on baggage must be stowed either in a baggage locker or under a passenger seat “in such a way that it cannot slide forward under crash impact”. It should also be loaded so it won’t be in the way of people getting out of the aircraft in an emergency. (Rule 91.213 *Carry-on baggage*.)

Making sure this happens is the responsibility of the pilot-in-command.

## Cargo

Backpacks, camping supplies, skis and briefcases are examples of frequently carried cargo. They should be carried in a cargo rack or bin, or in a cargo or baggage compartment.

It can be carried on a seat but, if so, it needs to be properly held in place by a safety belt or similar, which needs to be sturdy enough to ensure the cargo won’t shift during expected flight conditions and ground conditions, as well as unexpected turbulence. (Rule 91.215 *Carriage of cargo*.)

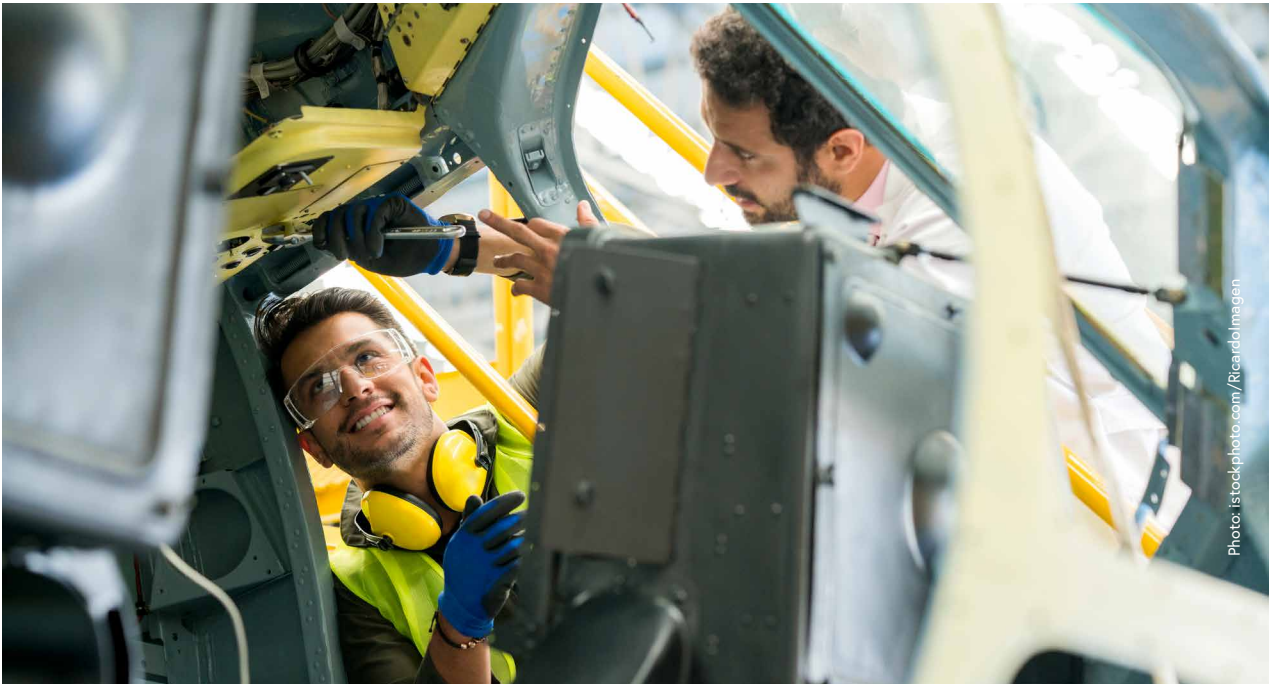
And to be absolutely sure the cargo doesn’t pose a threat, it has to be packaged and covered to avoid injuring any passengers.

Rule 91.215 makes no provision for cargo to be carried outside an aircraft unless it’s in an approved cargo rack or bin.

That means it’s not legal to strap items to the exterior of the aircraft – for example, to helicopter skids or cross tubes. 

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# THE VALUE OF YOUR 005D DEFECT REPORT



The CAA is *always* grateful when someone reports a defect. We're even more grateful if the 005D form is filled out correctly and with as much information as possible, because then our response can be appropriate to the issue.

**I**t's been pointed out previously in *Vector*, but it's worth repeating. When CAA aviation safety advisor John Keyzer presents an airworthiness and maintenance workshop, he begins like this: "The person sitting on the left of the room discovers a safety-critical problem with an aircraft component.

"Wouldn't you, as the owner of a similar aircraft, and over here on the right of the room, want to know about that?"

That's the basis of reporting – sending information to a central 'library' of information where it can be gathered

up, perhaps with similar data, and then circulated through the rest of the community.

The CAA very much appreciates there are time and financial costs to completing both the form and any subsequent investigation. But there's also a tangible benefit in providing defect data to a central point, particularly for operators of aircraft manufactured in New Zealand.

CA005D reports really are vital to continued aviation safety, and the more complete they are, the more valuable to everyone.

## Little information, wide response

When a relatively incomplete defect report comes in related to an item that's required for safety of flight or a critical piece of the airframe, the CAA may be forced to consider very conservative interventions.

We could issue an airworthiness directive grounding a whole fleet, meaning operators who're not actually affected by the issue are handicapped by that.

But with more information, we would realise the more appropriate response is to simply let affected operators know we're aware of a problem that may affect reliability.

## More information, targeted response

A decent amount of information on a 005D allows the CAA to make more focussed interventions.

Here are examples of the difference:

### Example A

A 005D is received by the CAA reporting a major structural attachment point failure in the empennage of an agricultural aircraft. *No information is provided on the Time in Service (TIS), no current nor historical operational information is provided, nor specific part numbers of the failed parts.*

The CAA response in this instance may be to mandate inspections prior to further flight, and then have those inspections repeated at a very short interval over all empennage attachment points for the entire fleet of that particular aircraft model.

### Example B

A 005D is received by the CAA reporting a major structural attachment point failure in the empennage of an agricultural aircraft. No information is provided on the TIS, no current nor historical operational information provided, *but the specific part numbers, names, and ATA chapter of the failed parts are provided.*

The CAA response may be to mandate inspections prior to further flight, and then have those inspections repeated at a very short interval of the partially failed parts identified for the entire fleet of that particular aircraft model.

### Example C

A 005D is received by the CAA reporting a major structural attachment point failure in the empennage of an agricultural aircraft. No current nor historical operational information is provided, *but the specific part numbers, names, and ATA chapter of the failed parts are provided, as is the total TIS of the airframe and part.*

The CAA response may be to mandate inspections of the partially failed parts identified before a certain TIS for either the part or airframe is reached, and then specify an inspection repeat interval for the entire fleet of that particular aircraft model.

### Example D

A 005D is received by the CAA reporting a major structural attachment point failure in the empennage of an agricultural aircraft. *The airframe history provided identifies that it has had mixed used between parachute operations and agricultural work. The specific part numbers, names, and ATA chapter of the failed parts are provided, as is the total TIS of the airframe and part.*

The CAA response may be to mandate inspections of the partially failed parts identified before a certain TIS for either the part or airframe is reached, and then specify an inspection repeat interval for those particular airframes that have seen mixed mission use in their service life.

## Opening up the networks

For New Zealand-manufactured aircraft, the CAA will always work with the Original Equipment Manufacturer (OEM) if there are any airworthiness concerns arising out of a 005D, regardless of how detailed the form.

But a more complete 005D report will allow the CAA to respond more quickly and more precisely than one short on details.


For non-New Zealand manufactured aircraft, we can make the entire New Zealand fleet aware of any emerging trends, or if a serious airworthiness concern is brought to our attention. We can also pass that information on to the relevant overseas national airworthiness authority overseeing the OEM, and the OEM may then well act on that information.

Again, the more complete and the more detailed the information we're passing on, the better.

## The worst-case scenario

The situation we absolutely want to avoid is a 005D without enough information to act on, and a serious airworthiness concern not addressed in time.

In the modern world of risk-based assessment and actions, safety decisions are only as good as the information they're based on.

So the more we all know, the safer we all will be. 

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Comments or queries?

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# DO A REALLY GOOD PREFLIGHT

(AND OTHER WISE WORDS FROM THE 2021 YOUNG EAGLES)

Despite the COVID-related perils of a career in aviation, this year's Young Eagles are full of enthusiasm, plans to pilot a Boeing 777, and some good safety recommendations.

“I think a really detailed preflight is just about the most important thing you can do,” says Kalarn Mark. “Because once you're in the air, and something goes wrong, well, you're pretty stuffed by then, right?”

Sometimes the clearest insight comes from the novice.

Kalarn was just 15 when the 2021 Young Eagles gathered at West Melton aerodrome in February, as part of Flying NZ's national championships.

Despite his youth, Kalarn was the overall winner of the four Ross Macpherson Memorial Scholars<sup>1</sup>.

He was also the despatcher in the Tauranga Aero Club runner-up team in the Ivon Warmington Trophy for liferaft dropping.

Kalarn's heading for a major airline one day, but in the meantime, he's going to build skills “having fun recreationally”.

Another Macpherson scholar, Stephanie Redepenning, marked her imminent 18<sup>th</sup> birthday by carrying off the Nola Pickard Memorial Trophy for winning the series of tests set the Young Eagles at the champs.

Stephanie – a Macpherson scholar for the second year in a row – is a glider, as well as powered, pilot with 45 hours flying in total. She recommends gliding for developing pure aircraft handling skills and an in-depth weather knowledge.

“Gliding has given me a good grounding in aerodynamics and airmanship skills for my powered flying. I value

learning how to identify what the air is doing or is going to do.

“I like thermals when I'm in a glider but not necessarily when I'm in a powered plane,” she laughs.

Stephanie's plans for an aviation career have not changed since she told *Vector* last year that she was working towards becoming a pilot for a flying doctor service, or the Mission Aviation Fellowship. “Aviation and assisting people in distress will always be in my heart”.

Macpherson scholar Sara Sutherland says the plane being ‘only as safe as its pilot’ is what dominates her thinking as she prepares for each flight.

“It keeps me focused on everything I'm doing during a preflight. And it reminds me to be aware of my actions and decisions, not only when it comes to doing a thorough preflight on the aircraft but also for myself, as the pilot.”

Sara wants to eventually make it onto the flight deck of an Air New Zealand airliner but she's keen to first work for a small airline.

“I think there's more ‘real flying’ in a smaller airline, and more contact with the passengers. A provincial airline pilot told me recently he'd circled over whales to give the passengers a ‘value-added experience’. I'd love to do that.”

Oliver Galpin was the winner of the 2021 Kirk Samuel Dakers Memorial Scholarship<sup>2</sup>. He also fancies working for a small airline before graduating into heavy metal for Air New Zealand.

<sup>1</sup> Four \$3,500 Ross Macpherson Memorial Scholarships for flying lessons were awarded in 2021, underwritten by the CAA, Avsure and Aspeq.

<sup>2</sup> The Kirk Samuel Dakers Scholarship is awarded by the Nelson Aviation College, in memory of one of its instructors. The successful scholar wins \$3,000 towards flying lessons.



// Stephanie Redepenning in the defects competition – one of the Nola Pickard Memorial Trophy activities – at the 2021 Flying NZ champs. Stephanie went on to win the trophy. Watching over her is her Young Eagles flight leader, Darryl Washington, from Canterbury Aero Club.

“I think flying first for a smaller airline gives you great skills in a busy environment – that’s good preparation for bigger airlines.

“You also learn great people skills which I think is actually really important in aviation.”

He says if he was advising an ab initio about safe flying, he would tell them to be meticulous – even while still on the ground.

“Planning the flight, thinking the flight through, being aware of what could go wrong and having a plan B if it does.”

Any other tips for the brand-new student? “Listening to the instructor is a good idea!” he laughs.

Joe Carter, the fourth Macpherson scholar for 2021, was one of the more experienced Young Eagles at the champs, with 35 hours flying and having gone solo on his 16<sup>th</sup> birthday in August 2020. He won the Dakers scholarship in 2020.

“The first thing you notice is that the plane climbs out a lot more quickly because there’s no instructor with you. I also remember thinking, ‘Oh boy, now I have to land this thing’.

“To be honest, the hardest part is probably the build-up, walking out to the plane to preflight it, when it’s all ahead of you.

“Once you’re in the air, you’re concentrating so much, it’s over really fast.”

Joe wants to go down the instructing path. “I really like passing on the knowledge I have to others. I really do quite enjoy it,” he says happily.

His top safety recommendation is about respect. “For the weather, the terrain, for the aircraft – and for the rules. They’re there for a reason.

The 2021 Waypoints Aviation<sup>3</sup> scholar, Ava Venn, has also achieved the holy grail of a solo flight.

She’d moved so fast through her self-funded training that she was ready to solo long before her 16th birthday.

“It felt like I’d been stuck in the circuit for ages, so going solo reignited that passion for flying because obviously it was something I’d never experienced before.”

Inspired by a family friend who’d flown in the British Royal Navy, Ava’s professional aviation hopes rest on flying navy Seasprites.

“Helicopters are more exciting because they seem less easy to control than fixed wing. I enjoy a challenge, and they definitely seem like one.”

Ava’s top safety tip centres on her personal readiness to fly.

“I’m quite aware of myself before flying. I always work through the ‘IM SAFE’ checklist to make sure I’m ready.

“I know having bad days is okay but I don’t mix them up with flying.” ➡

<sup>3</sup> The Waypoints Aviation Scholarship awards \$3,245 to the winner, together with a set of PPL theory books.

# TCAS: A VALUABLE TOOL IF EVERYONE PLAYS THE GAME



The CAA receives regular reports of near misses<sup>1</sup> resulting from aircraft transponders being faulty, or not turned on.

The message is simple: For TCAS (traffic collision avoidance system) to work and prevent a potential catastrophe, transponders *must* be turned on.

In October 2019, the pilots of an IFR helicopter took avoiding action after receiving a TCAS alert advising of another aircraft in close proximity.

An internal investigation by the helicopter company found it was likely a light aircraft that had entered controlled airspace without an ATC clearance. When it did contact ATC, it was already in controlled airspace and in close proximity to the helicopter.

The helicopter’s TCAS monitored about 18 NM around the aircraft. Since the light aircraft didn’t appear on the TCAS until after the call to ATC, and appeared in very close proximity, it’s possible its transponder wasn’t turned on until that moment.

A safety spokesperson for the helicopter company said, however, that they couldn’t confirm if the light aircraft’s transponder was off and then switched on at the last minute.

“But having been through this incident, however, we want to encourage the use of transponders by all aircraft at all times, including outside controlled airspace.”

There’ve been three mid-air collisions in New Zealand since 2008, all of which were outside controlled airspace.


“We would encourage the use of any tool that improves pilots’ situational awareness,” says Hamish McKoy, the CAA’s senior specialist on airspace use.

“TCAS is a valuable tool to a pilot, but it’s only as good as the information it receives. That means the transponders of all aircraft need to be turned on.”

This applies particularly to mandatory broadcast zones – uncontrolled airspace where pilots must have transponders on at all times.

“However, the pilots of those aircraft with TCAS,” says Hamish, “should also make sure that it adds to, but does not replace, a good lookout.”

Automatic Dependent Surveillance-Broadcast (ADS-B) and in particular ADS-B IN, will increase pilots’ situational awareness and improve their ability to avoid conflicting traffic.

“Like TCAS, however,” says Hamish, “to be effective, ADS-B relies on the pilot actually turning it on.” 

Comments or queries?

Email [aeronauticalservices@caa.govt.nz](mailto:aeronauticalservices@caa.govt.nz)

// Traffic alerting systems such as TCAS and ADS-B need to be in operation to be of any use.

<sup>1</sup> 'Near collision', 'air proximity' and 'loss of separation' events.

Photo CAA/Pen Mackay



# SPOT THE WIRE

// By Peter Bartlett, Health and Safety Practitioner, Transpower<sup>1</sup>



Two aircraft-versus-lines occurrences in the last three years highlights the inherent danger of operations near the national grid network.

**I**n early 2019 an agricultural aircraft crashed after flying straight into a nearby transmission line in the North Island.

The pilot was relatively uninjured but the helicopter was badly damaged.

A year earlier, also in the North Island, another agricultural pilot did the same thing, but was able to land safely.

In both incidents, the weather was fine with good visibility and the pilots apparently knew the lines were in the vicinity.

Flying into lines is not the only danger of working near the national grid network.

In March 2020 a helicopter winchman received multiple low-level but painful shocks, as he was being lowered into a clearing between two parallel transmission lines.

The helicopter frame and its suspended load had built up an electric charge and the person suspended from the helicopter by a conductive (steel) winch cable was subject to sudden and continuous discharge as they came into contact with the ground.

Happily, the winchman was able to move clear of the lines and was winched to safety without further problems.

This problem can be mitigated by maintaining a minimum safe distance from the live conductors. »



Photo courtesy of Transpower

<sup>1</sup> Transpower is the state-owned enterprise that owns and operates the national grid – the high-voltage network transmitting electricity around New Zealand. The grid is made up of about 11,000 km of transmission lines throughout the country, supported by about 40,000 tower or pole structures.

## » Minimum approach distances for helicopter operations around Transpower transmission lines and structures

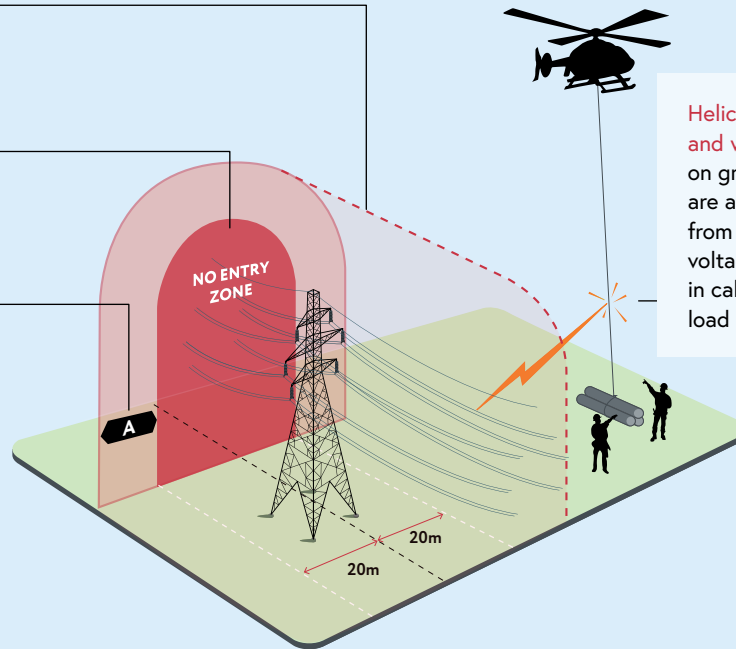
### Vertical tower

Safe suspended load setback 'A' metres

**NO ENTRY FOR ALL HELICOPTERS WITHIN 20m of conductors (wires)**

Contact Transpower for any suspended load work within area 'A'

Helicopter and workers on ground are at risk from induced voltage stored in cable and load



**A**

220kV and ABOVE

**70m**

110kV and BELOW

**25m**

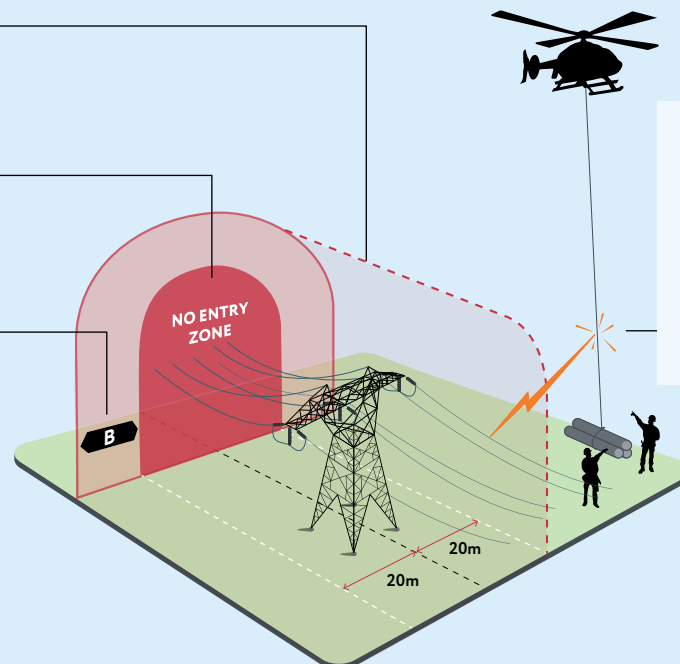
### Horizontal tower

Safe suspended load setback 'B' metres

**NO ENTRY FOR ALL HELICOPTERS WITHIN 20m of conductors (wires)**

Contact Transpower for any suspended load work within area 'B'

Helicopter and workers on ground are at risk from induced voltage stored in cable and load



**B**

220kV and ABOVE

**40m**

110kV and BELOW

**20m**



## Other lessons

Preflight planning must take into account the proximity of transmission lines.

Flight runs should be parallel with transmission lines wherever possible, and pilots should make sure they maintain situational awareness of hazards at all times.

The incidents also illustrate that it's essential operators conduct ongoing training in avoiding wires.

## Our advice

- Identify the transmission lines in your flight path. The AIP and VNCs show Transpower's lines. Maps and GIS files of all Transpower assets are also available at [transpower.co.nz/keeping-you-connected/maps-and-gis-data-0](https://transpower.co.nz/keeping-you-connected/maps-and-gis-data-0)
- Do a full 360-degree reconnaissance of the area.
- Complete a safety briefing before starting work.
- Always maintain a minimum 20 metre distance from transmission lines.
- Be aware of earth wires when flying over transmission lines. They're normally of smaller diameter than the main conductors and are therefore less visible. They may be much higher than the main conductors, especially at mid-span. It's best practice to always cross over transmission lines at the structures, not between them.
- If you're crossing transmission lines carrying a suspended load make sure you stay at least 1.5 times the maximum length of the wire or sling – or at least 20 metres – above the lines.
- Exercise extreme care when flying over ice and snow-loaded conductors, as rotor wash can cause the ice or snow to break off the conductors resulting in them suddenly rising tens of metres.
- Be aware that wind and rotor wash can cause conductors to swing and move side to side.
- Recognise that at slow speeds, loss of tail rotor effectiveness, settling with power, or mechanical failure are major risk factors for line strike.
- Call Transpower on 0508 526 329, if there's any risk of contacting transmission lines, or when you're planning to undertake winching operations near transmission lines. [↗](#)

# ACCESS TO CONTROLLED AIRSPACE IS CHANGING



## You must be equipped by 31 December 2022

### Install ADS-B

Apply for your ADS-B grant (OUT and IN) at [nss.govt.nz/adsb](https://nss.govt.nz/adsb)

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# BUILDING A SECURITY CULTURE

ICAO has declared 2021 “The Year of Security Culture” saying that security is *everyone’s* responsibility. What does that mean for you as a New Zealand aviation participant?

Every year between 2008 and 2019, the Global Peace Index<sup>1</sup> ranked New Zealand as either the second or third most peaceful country in the world.

In March 2019, after New Zealand was again ranked the second most-peaceful country (behind Iceland), a gunman shot dead 51 people and injured 40 others at two mosques in Christchurch.

So we all know that despite being a generally tranquil country, New Zealand is not immune to acts of extremism, terrorism or other significant security risks.

Around the world, several would-be attacks have been thwarted in the planning and reconnaissance stage by ‘ordinary’ people who were uneasy about something they were witnessing, and reported it.

And now, as ICAO’s Year of Security Culture unfolds, New Zealand aviation participants are being called on to play the same role.

“Individuals *can* make a difference,” says CAA’s manager of security regulation, David Willing. “And this campaign is about empowering individuals to look out for and report behaviour they think looks suspicious.”

The New Zealand Government says all New Zealanders have a responsibility to do so.

Its *Protecting Our Crowded Places from Attack* strategy says, “Everyone who works in, or uses, a crowded place should be aware of their surroundings and report suspicious or unusual behaviour to authorities.”

“Of course, not all odd-looking behaviour is a sign of planned terrorism or criminal activity,” says David. “But we would urge people to err on the side of caution and report anything they’re unsure about, rather than ignore something that could be the marker of a tragedy to come.

“Often people feel it’s not their role to report anything out of the ordinary, or no-one will take any notice of

<sup>1</sup> The index is produced by the Institute for Economics and Peace, a Sydney-based global think tank. It works with various UN agencies and the OECD.

what they say, or they don't know what to do about what they've seen. They may feel embarrassed about raising a concern or think they could be reprimanded for 'wasting people's time'.

"We want that to change. We want every single person in the civil aviation system to feel like it is up to them and they feel comfortable mentioning something they feel is a bit odd."

In people's minds, large airports and aircraft may be the most obvious or visible places for a security threat but it could be anywhere and at any time, says David.

"Remember, the 9/11 pilots trained in ordinary provincial flight schools. Those trainee pilots demonstrated some suspicious behaviours as they trained, but before the 9/11 attacks, we weren't as aware of threats to aviation.

"But now we *are* aware, and each of us has a personal responsibility for aviation security.

"Even a report with no particular significance at the time may prove vital later on, if similar reports come in, or circumstances change. So if you see something or hear something, report it."

## The role of organisations

For their part, says David, aviation organisations – from airports to aero clubs – should be planning a robust security culture where individuals are aware of their role in security, and feel comfortable reporting.

Organisations don't have to start from the beginning. The fundamentals should already be there.

"Potentially, the most under-utilised resource available to security managers," says Australia's *A guide to developing and implementing a Suspicious Activity Identification Program at airports*, "is the eyes and ears of employees and visitors to their facilities."

The program says the use of trained employees going about their normal duties makes building and maintaining a security culture low-cost.

And New Zealand's crowded places strategy says the measures to protect organisations from attack or criminal activity are similar to those reducing the risk from natural disasters, which operators will already have in place.

"Owners and operators ... should, therefore, make use of existing plans and methods for safeguarding their locations," the strategy says.

Certificated organisations that have gone through the safety management systems process will recognise many of the same elements in a security culture:

- Management leading by example and genuinely committing to that culture.
- Training employees in keeping security in the forefront of their minds.
- Regularly communicating about security plans.
- Making reporting easy.
- Supporting individuals who report, even if they have to admit to a mistake.
- Replying quickly to reports, and acting promptly on them.

"We want every single person to know how to report," says David, "and to be confident their report will be well-received by the organisation – even if the incident turns out to be innocuous."

The crowded places strategy says that having a robust security culture has benefits other than preventing an organisation being attacked, or subjected to other criminal activity.

It can "reduce the damage caused by an attack and enable its owner and operator to resume business-as-usual activities more quickly".

Some of the benefits, says David, become evident only when the absence of a good security regime allows an attack.

"Even an attempted attack can affect confidence in the operator, the aviation sector, or even the country.

"Because of the high visibility of our current prime minister and the country's response to the COVID-19 pandemic, the news of any extremist attack in New Zealand would go around the world – as it did after the Christchurch attacks – potentially affecting our global reputation.

"Any attack would affect the country's transport networks, and have serious implications for our trade, and our economy.

"It's our duty as individual citizens to do what we can to prevent that happening.

"Otherwise, we'll never see it coming." 🛑

## // MORE INFORMATION

For specifics on building a security culture, go to [police.govt.nz](https://www.police.govt.nz) and search for 'crowded places strategy'; or [icao.int](https://www.icao.int) and search for 'suspicious activity identification program'.

# THE LEGALITY OF AIPNZ

// By CAA Principal Solicitor John Parnell

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):

- a) The emergency involves a danger to life or property; and
- b) the extent of the breach of the prescribed requirement goes only as far as is necessary to deal with the emergency; and
- c) there is no other reasonable means of alleviating, avoiding, or assisting with the emergency; and
- d) 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 information<sup>1</sup>:

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 navigation<sup>2</sup>.

The three features of New Zealand's aeronautical information service – the AIP, a flight information service<sup>3</sup> and the NOTAM service<sup>4</sup>, must be made readily available to any person (once they've paid a reasonable charge)<sup>5</sup>.

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. 

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Comments or queries? Email [john.parnell@caa.govt.nz](mailto:john.parnell@caa.govt.nz)

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

<sup>2</sup> See section 75(1) of the Civil Aviation Act 1990.

<sup>3</sup> See definition of "flight information service" in Part 1 of the CARs.

<sup>4</sup> 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".

<sup>5</sup> See section 75(2) of the Civil Aviation Act 1990.

# PARTING OUT

We're living through tough times in the aviation industry. 'Parting out' – removing serviceable parts from one aircraft to put in another – may help, but there's more to it than meets the eye.

The much slowed-down aviation industry of the past 12 months, together with supply chain difficulties, has resulted in many aircraft being withdrawn from New Zealand service.

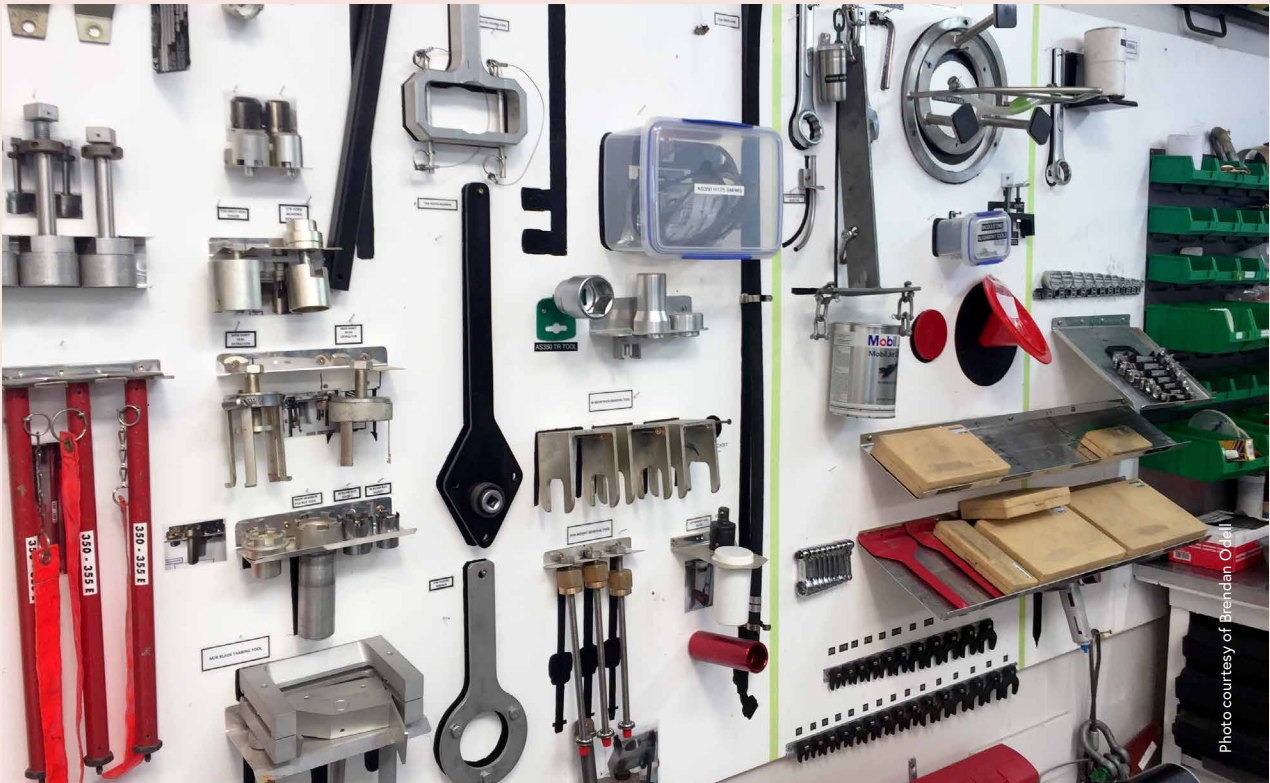
But this cloud might have a silver lining. The parts from retired aircraft could provide a solution for the operators and maintainers who're finding their 'just in time' model of obtaining parts to maintain their aircraft, is no longer viable.

Aircraft withdrawn from service are often used as a source of spare parts – a process described as 'parting out' or 'reduce to produce' or parts 'robbery' or even 'cannibalisation'.

Not only does it provide operators with the opportunity to use their own stocks, it's also becoming big business. The global market for recycled aircraft parts is expected to be worth more than \$NZ8 billion by 2022, according to the World Economic Forum.

There are, however, important things to think about when removing parts from a retired aircraft, to install them on another aircraft.

Here, *Vector* is looking at parts that have been determined not to need overhaul or a 'shop visit' on removal, and can be immediately fitted to another aircraft.



// It's important to follow the manufacturer's removal instructions – this may require using special tools and/or holding fixtures.

These are referred to as ‘removed serviceable’ with the *ASA Dictionary of Aeronautical Terms* describing ‘serviceable’ (physical condition) as:

“The condition of a piece of equipment that allows it to be returned to service or to be installed in an operating aircraft.”

The first thing for a maintainer or operator to consider is that parts removed from stored aircraft – although serviceable at the time the aircraft was placed in storage – may have been affected adversely by storage conditions. Those might be the environment in which the aircraft has been stored or the length of time it’s been stored.

The second thing to do is check the aircraft’s records for its history and that of its parts, before it went into storage.

The records should give you previous maintenance history, relevant mandatory continuing airworthiness information, and the modification and repair status of the parts being removed.

Any unusual events immediately prior to storage, eg, heavy landings or lightning strikes, will also have to be weighed.

It’s important too, that removing the part is carried out using the same standards of work as those expected on an in-service aircraft.

Think about the following:

- The means by which the part is removed should be in accordance with acceptable technical data, eg, maintenance manuals, using the tooling specified.
- Adequate access equipment should be provided.
- If the aircraft for disassembly is outside, don’t do it in bad weather, for obvious reasons.
- Appropriately qualified maintainers should be the only people to carry out the work.
- Appropriately blank all open connections.
- Provide a protected and enclosed quarantine storage area for the parts being removed in the immediate vicinity of the work area.
- Use normal maintenance procedures to dismantle the aircraft, for example, the use of work sheets or cards to record component removals, and label identification to show serviceability status.
- Update the aircraft records for the donor aircraft to clearly reflect which parts were removed at which time. Should the donor aircraft be restored to airworthy condition, it’s critical to ensure the records’ continuity and integrity.
- Consider the health and safety implications around the dismantling of aircraft and the very real hazards to anyone engaged in the disassembly.

Only a suitably licensed and rated/approved person or organisation should assess the condition of each removed part and its eventual return to service. A simple visual inspection alone should not be relied upon to determine airworthiness.

It’s important to remember that the decision as to whether a part is eligible for installation lies with the installer. The assessment for eligibility must go beyond checking that a release to service has been signed.

And while a functional test of the part, once installed, is likely to be necessary, it should not be considered the sole means of verifying airworthiness.

## About the Form Two

The purpose of the CAA Form Two is to identify the origin of items being transferred between aircraft or aircraft maintenance providers, and certification of the item’s airworthiness.

It’s used to track serviceable items on or off aircraft and into or out of stores.


It’s valid only in the New Zealand aviation system (meaning it’s unlikely to be recognised by foreign authorities). And it can be issued only for a part removed from an aircraft that has had an airworthiness certificate issued to it in New Zealand.

The use of the Form Two (or equivalent, which has been found acceptable to the Director) by Part 145 organisations, in all cases, must follow the procedures accepted by CAA in the organisation’s relevant expositions.

Therefore, occasions do occur when parts passing between Part 145 organisations on a Form Two may be unacceptable to the receiving organisation due to their documented procedures (or maintenance is required that must be performed by a Part 145 organisation. Refer to rules 43.54 and 135.402 (a) (c) (1)).

In such cases, it might be appropriate to issue a Form One (rule 43.105 (a)(1) and (2)). A Form Two should not be used in place of a Form One.

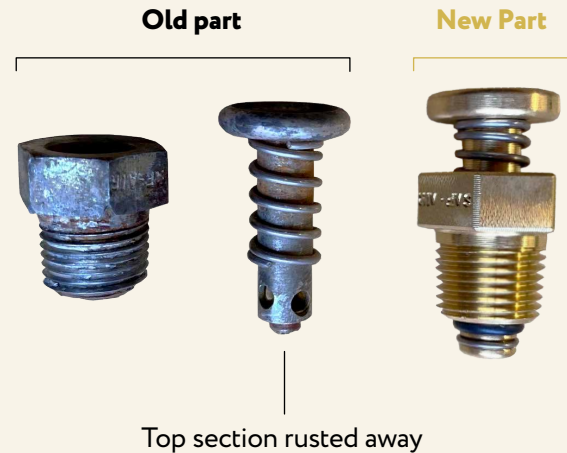
## Check out...

- Advisory Circular AC43-3
- ICAO Document 9760 Airworthiness Manual (Fourth Edition) Para 9.10.8
- IATA guidance for Best Industry Practices for Aircraft Decommissioning (BIPAD) (1st Edition November 2018)
- Airbus Helicopters Safety Information Notice 2152-S-00. 



# TEACH ABOUT THE PAPERWORK TOO

## A PLEA TO INSTRUCTORS



An instructor might think they're being helpful by taking care of all the paperwork. But they could be setting their student up to fail as a future aircraft owner/operator.

When engineer Colin Alexander, of Solo Wings in Tauranga, recently investigated a fuel leak in an autogyro, he discovered the problem lay with the fuel drain.

Turns out, the owner didn't know the fuel drain existed, had never drained water from it, and its top retaining shoulder had rusted away, predictably "through lack of use and the presence of water" (defect report).

Such obliviousness from aircraft owners is not a one-off in Colin's experience. Also recently, he received an aircraft after a smoking radio had triggered a fire in the cockpit.

Locating the tech log to record his repair, he found the aircraft had an overdue airworthiness check, and "a couple of other things that would have made the aircraft unairworthy – and therefore illegal to fly.

"The pilot had no idea."

Colin says such incidents are becoming more common.

"Students often have much of the paperwork taken care of by their instructor. I guess the instructor is trying to be helpful, or it's simply quicker for the instructor to do it.

"But the students never learn to do it themselves, that it's important, or even that it has to be done at all.

"In fairness to them, they can't know what they're not taught."

Colin says the new PPL holder sometimes thinks they've been trained in everything they need to know, so it's time for them to buy an aircraft.

"They have no clue what a tech log is for, or daily flight sheets, or maintenance records. These things are often foreign to the new aircraft owner with a fresh PPL."

So Colin's making a plea to instructors to teach 'the other stuff' to ab initios.

"It's not just about flying practice," he says. "Students need to also be made aware of on-the-ground know-how, and record-keeping."

CAA flight examiner Katrina Witney says both 'preflight' and 'aircraft documents' are integral competencies, evaluated as part of the biennial flight review, type ratings, and initial issue of a private pilot licence.

"The BFR and type rating are learning opportunities and should be conducted as such. Often these are the only occasions where instructors have the chance to impart further knowledge to an already qualified pilot.

"A thorough BFR and type rating assures that the pilot has demonstrated a sound technical knowledge of the aircraft type, reducing the likelihood of demonstrating such failings, as in Colin's examples." ➤



## OCCURRENCES DASHBOARD

These are the number and type of occurrences reported to the CAA, 1 January 2021 to 31 March 2021.



## AVIATION SAFETY ADVISORS

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

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

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

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

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

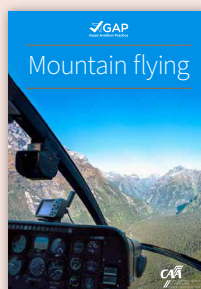
## UPDATED PRODUCTS

Some of our most popular products have been revised and updated.



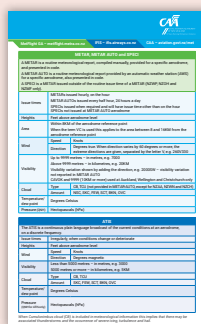
### Fuel management

This in-demand GAP booklet has been refreshed and updated to reflect the latest best practice in handling fuel on the ground and managing it in the air.



### Mountain flying

This must-have guide to flying in mountainous terrain has been improved and refreshed to include the latest advice from the CAA's team of specialists.



### Weather card

Consulting the CAA weather card is a staple of any flight planning. The latest version is now available, incorporating minor edits including updated issue times for TAFs.

Email [publications@caa.govt.nz](mailto:publications@caa.govt.nz) for a free copy of any of these items.

# ACCIDENT BRIEFS

## Fly Synthesis Texan Top Class

Date and time:	04-Sep-2020 at 12:00
Location:	Whangārei
POB:	2
Nature of flight:	Private other
Flying hours (total):	201
Flying hours (on type):	174
Last 90 days:	6

In September 2020, a Fly Synthesis Texan Top microlight experienced a flat tyre on landing at Whangārei. The aircraft veered off the seal runway causing significant damage to the nose gear assembly. The aircraft came to a rest on its nose.

The PIC advised that, on touching down at Whangārei on the seal runway, there was a muffled bang and loud rumbling noise under the front of the aircraft. The PIC suspected a tyre had blown out. They were able to keep the aircraft travelling in a straight line for approximately 80-100 metres but as the airspeed reduced, the rudder was not effective enough to maintain directional control. The aircraft then veered off the runway hitting a runway edge light and coming to a stop on its nose. The pilot was not injured and the aircraft was subsequently removed to a local hangar.

[CAA occurrence number 20/4543](#)

## Benson B8M Gyrocopter

Date and time:	25-Jan-2019 at 20:25
Location:	Dannevirke
Damage:	Destroyed
Nature of flight:	Private other
Age:	35 yrs
Flying hours (total):	30
Flying hours (on type):	15
Last 90 days:	7

During the take-off roll, the pilot noticed that the engine was not producing full power. They continued with the take-off as they thought that it may have been a fouled spark plug causing the reduced RPM which would eventually clear.

The gyrocopter climbed to approximately 50 feet along the runway but the engine continued to lose power. The pilot attempted to turn back to the runway but underestimated the effect of the prevailing wind when he turned downwind. After a further turn to avoid a fence, the gyrocopter landed heavily and rolled on its side. During the ground impact, the fuel tank ruptured spraying fuel on the pilot's legs. The fuel then ignited, resulting in severe burns to the pilot. First responders were immediately on hand to assist the pilot who was then taken to hospital.

[CAA occurrence number 19/445](#)

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

## De Havilland Canada DHC-3

Date and time:	30-May-2018 at 08:30
Location:	Rotorua lakefront
POB:	1
Nature of flight:	Ferry/positioning
Pilot licence:	Private pilot licence (Aeroplane)
Age:	23 yrs
Flying hours (total):	1031
Flying hours (on type):	33
Last 90 days:	75

The floatplane was taxiing on the water when it failed to give way and collided with a boat. The boat's captain was unable to alter course safely and was attempting to reverse clear of the floatplane at the time the two vessels touched.

No one was injured. Minor damage caused to the ferry but more extensive to the floatplane. The aircraft operator has since reminded staff to comply with all the applicable regulations.

[CAA occurrence number 18/4018](#)

## Eurocopter AS 350 BA

Date and time:	17-Feb-2019 at 14:52
Location:	Nelson
POB:	1
Damage:	Substantial
Nature of flight:	Aerial application/dropping
Pilot licence:	Commercial pilot licence (Aeroplane)
Age:	67 yrs
Flying hours (total):	14975
Flying hours (on type):	2000
Last 90 days:	100

The helicopter was engaged in a firefighting mission when the pilot noticed a sudden yaw to the left followed by another to the right. This was followed by a sudden pitch up so the monsoon bucket was immediately jettisoned.

The pilot found he had little directional control but was able to control the rate of descent down to the ground.

The helicopter suffered major damage and its tail section was severed off. The pilot received an injury to one of his ankles during the accident and was taken to hospital.

The full report from TAIC, AO-2019-001, is available on [taic.org.nz](http://taic.org.nz).

[CAA occurrence number 19/964](#)

# GA DEFECTS

## KEY TO ABBREVIATIONS:

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

GA defect reports relate only to aircraft of maximum certificated takeoff weight of 9000 lb (4082 kg) or less. More GA defect reports can be seen on the CAA website, [aviation.govt.nz](http://aviation.govt.nz) > aircraft > GA defect reports.

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

### Eurocopter AS 350 B2

While conducting fire bucket operations, the sectional steel ring at the top of the fire bucket became dislodged causing the bucket to behave erratically. The pilot gradually slowed the aircraft and returned to the staging area.

On inspection, it was found the Velcro® retention tabs, holding the top ring in place, had become unstuck in flight, resulting in the unstable flight characteristics of the bucket.

Further investigation determined there are four possible scenarios that could result in such a failure:

1. incorrect assembly of the bucket, or
2. general wear and tear of the Velcro® retention tabs causing poor adhesion, or
3. the effects of the airflow in flight causing the Velcro® to come apart, or
4. a combination of two or more of the above.

This particular incident was most likely caused by a combination of wear and tear and the effects of airflow in flight that caused the Velcro® to come apart.

The operator has since had the fire bucket upgraded by the manufacturer to incorporate a solid steel ring that is permanently fixed in place. This upgrade eliminates the possibility of a similar occurrence.

Furthermore, as a result of this incident the manufacturer released a preflight safety checklist specific to the fire bucket with the steel folding ring and Velcro® retention tabs. This was to provide clear inspection criteria to ensure the safe operation and maintenance of the bucket. This was followed up with Continuing Airworthiness Notice 05-012 from the CAA and disseminated to all relevant participants. The manufacturer also confirmed that this style of bucket, with steel folding ring and Velcro® retention tabs, is no longer being manufactured and hasn't been for some time.

[CAA occurrence number 20/1842](#)

### Pacific Aerospace Cresco 08-600

#### Wing outer panel

On the day of the incident, the pilot had contacted the farm manager to enquire about the condition of the loading area. The farm manager replied he was on the other side of the farm and would have a look when he got back. Due to the short distance and an assumption that it would be okay, the pilot decided to fly out with the intention of working without receiving confirmation on the condition.

Upon arrival the pilot noticed a soft patch in the middle of the loading area which had been caused by cattle recently grazing on the airstrip. Neither the pilot nor the loader driver had suitable products to fix the soft patch, so in assessing the risk they decided it was acceptable to work by manoeuvring (shifting the taxi path) around it. The resultant shift in taxi path reduced the clearance between the L/H wing tip and the open bin gate down to a maximum of two metres (if the starboard wheel passed just beside the soft patch).

Wheel marks on the ground indicate that the starboard wheel was passing within a metre of the soft spot for the 15 loads leading up to the wing tip strike. This would have provided a wing tip clearance of approximately one metre.

On landing for the 16th load of the morning, the pilot misjudged his distance and the L/H wing struck the fertiliser bin gate.

Both the farm manager and pilots have been reminded of the need to not only identify and record hazards but to take all reasonable practical measures to mitigate the risks, rather than working around them.

[CAA occurrence number 19/4940](#)

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