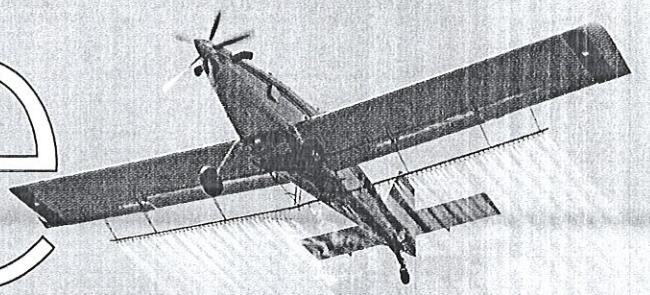
Extended Wire Safety Course to be held Thursday, December 7th at 2023 Ag Aviation Expo

On Thursday, Dec. 7, in Palm Springs, for the second year NAAA is hosting a Flying in the Wire and Obstruction Environment Course, acclaimed by professional airplane and helicopter operators world-wide. This year's course will be a full-day, eight-hour course compared to last year's half-day course. The instructors give low-altitude aviators the essential skills needed to safely operate an aircraft in wire and obstruction environments. This course is for both aircraft and helicopter pilots. Learn how to identify signs of wires and why ag aviators hit wires they already knew were there. This course may very well save your life – wire strike accidents continue to harm the ag aviation industry. In 2022, there were eleven wire strike accidents, one of which was fatal. So far in the 2023 season, there have been eleven wire strike accidents, five of which were fatal.

Register at the QR Code below for only $150 per person.

The course will be taught by Utilities / Aviation Specialists Inc. (UAS), a unique group of aviation safety practitioners who provide safety auditing, specialized training, installation of safety management systems, and technical aviation consulting. They provide mission-specific expertise in specialized applications which require skill sets above those found in most routine transport operations.

One STRIKE and You're Out



by Kreisha Ballantyne, reprinted from Flight Safety Australia: CASA's flagship aviation safety magazine

Wire strike rarely offers second chances, which means knowledge, planning and abundant caution are your only defenses.

For most private pilots, the best strategy to avoid wire strikes is three words – don't go there. However, different words must apply to pilots who make their living flying low – see and avoid.

Ag pilots, survey pilots, owners and operators of aircraft landing areas have no choice but to contend with low-level operations where wire strikes are a perennial risk.

Harley McKillop, the chief pilot at Pay's Air Service in Scone, NSW, says preparation and investigation are vital to minimizing the risk of wire strikes for agricultural aircraft.

'The best way to mitigate risks is to do your checks,' he says. 'Even if it's somewhere you've been before, you must get the best third-party information you can. You need to take the time to study the map. Ask the right questions of the grower. Get the best advice you can.'

The next preparation stage involves on-site inspection and verifying what others have said about the local wires. 'You can't just go in with the information a third party gives,' McKillop says. 'You have to check every part of it yourself.'

McKillop's advice is blunt for private pilots: 'You just shouldn't be playing around down there. If you don't need to be there, don't go there.'

Wire strikes are on the increase. An analysis of key statistics for the past decade shows that Australian 2022 wire strikes were 80% above the average number per year. The study also indicates wire strikes:

- makeup 0.5% of the total reported occurrences across all sectors
- comprise 8% of accidents and serious incidents and 5.2% of fatal accidents
- comprise 36% of total aerial work accidents and serious incidents
- occur mostly during aerial work – 73%.

Perhaps most sobering of all, 100% of fatal wire strike accidents involved hitting an unmarked wire.

Low Flight, High Risk

The wire is no respecter of experience – about half of the wire strikes have been by pilots with more than 5,000 hours – and very often, they hit wires they know are nearby. ➢

McKillop says his two wire encounters had a significant factor in common with many aerial agricultural wire strikes. 'The wires we generally hit are the ones we know about – sadly,' he says. 'Every wire I've hit, I've known about. I've known where they were, but I still hit them.'

Experienced aeromedical helicopter pilot Adrian Park says nearly every pilot operating at low level has a 'near hit' story to tell.

'Whether it's a wire they didn't know about or one they did and got distracted from, each of these pilots narrowly avoided a collision,' he says.

Wire strikes are the main hazard of low-level flight, and a consistent cause of injury, death and destruction.

'I'm the same. If it weren't for the sharp eyes of my crew, I would have collected one myself. Such an environment demands our 'A' game, which means if we are not well trained, don't have the right procedures, are distracted or unduly stressed and fatigued, we should be giving that low-level job a serious rethink.'

The number of wire strike accidents rises and falls: 2016 was a bad year, with 14 accidents, six involving helicopters. Those 14 accidents resulted in one death and 11 injuries. There were 10 accidents in both 2018 and 2020, while in 2021 and 2022, there were fewer deaths but a higher number of incidents.

During the 2012–2022 decade, 307 wire strikes were reported—eleven of these involved drones.

- Of the other 296, 217 (73%) occurred while aerial work was being conducted.
- Of the 217 aerial work wire strikes, 194 (89%) occurred during agricultural spraying or spreading.

Robert Feerst, founder of wire strike consultancy Utilities Aviation Services, runs a course on flying in the wire environment. 'Wire strikes in helicopters are one of the leading causes of hull losses worldwide,' he says. 'Sixty percent of wire strikes result in a fatality. To a low-level flight crew, the wire must be classified as an invisible hazard.'

His helicopter-focused course emphasizes the vital importance of developing crew resource management (CRM) specifically for low-level operations. 'The core of low-level CRM is recognizing hazards and speaking out at once, regardless of inhibition or perceived rudeness,' he says.

More than Meets the Eye

Not all the wire strike occurrences reported during the decade were investigated.

Of the fatal accidents investigated:

- 43% of the wires were known to the pilot but not visually sighted
- 100% were because of hitting an electrical wire that was unmarked
- 75% of the private fatal accidents involved striking wires during unnecessary low-level flight (not on approach or departure).

Of the non-fatal accidents investigated:

- 94% of the wires were not reported as having been marked.

Several factors often make wires invisible, even to a trained and observant crew. These include:

- atmospheric conditions
- cockpit ergonomics
- dirt or scratches on cockpit windows
- viewing angle
- sun position
- visual illusions
- pilot scanning abilities and visual acuity
- flight deck workload
- camouflaging effect of nearby vegetation.

Older wires may be difficult to see because their color often changes with age. Copper wires oxidize to greenish, making them well camouflaged with vegetation.

Perhaps most sobering of all, 100% of wire strike fatal accidents involved hitting a wire that was unmarked.

Some electricity transmission towers, including in the NSW Hunter Valley, are actually painted green to blend in with the environment. This is soothing for residents but not for pilots.

A perfectly visible wire from one direction may be completely invisible from the opposite. The exact location of specific wires may change throughout the day because of fluctuating ambient temperatures, which may cause wires to sag or tighten. Even on a cloudless day, the sky's blue can change to reveal or hide wires. The wind may blow long spans of wire, with tens of meters of displacements for wires crossing valleys.

Then there are optical illusions, including:

- high-wire illusion: When you are looking at two parallel wires from 200 meters or more away, the highest wire will appear further away when it may not be

- phantom-line illusion: A wire running parallel to others can become camouflaged.

Look Up and Live

Australia has comprehensive regulations, including minimum height requirements, the requirements for ratings and endorsements for low-flying and aerial work operations, and the marking of obstacles (including wires) near certified aerodromes.

Educational, promotional and awareness products are available for pilots and landowners, detailing the risks posed by wires. These are provided by the Aerial Agriculture Association of Australia, electrical infrastructure companies, the ATSB and CASA.

Over recent years, the Aerial Agriculture Association of Australia has worked to reshape the Australian Standard on the marking of powerlines. The association has developed a human factors training course and worked with powerline companies to develop mapping and marking systems and make them available to pilots and business owners.

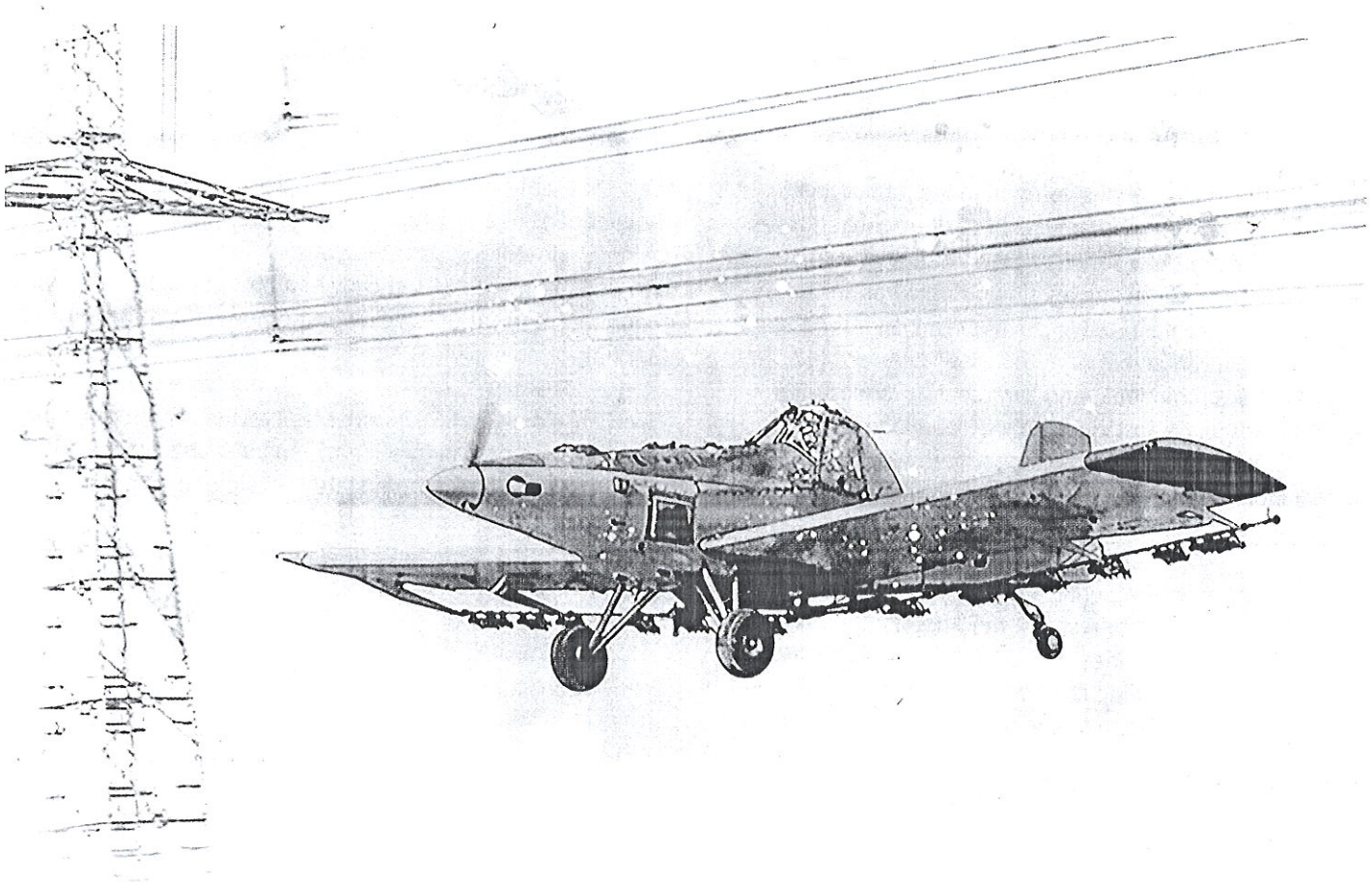
It has launched a powerline safety program to encourage power companies to improve aviation safety and encourage aviation businesses and rural landholders to improve safety.

Echoing research conducted by the ATSB, the association says that while training and professional development play a significant role in preparing pilots to manage the risks associated with low-level operations around powerlines, two key initiatives can improve safety: the provision of mapping information on powerline networks and the marking of powerlines.

Electrical infrastructure companies provide resources about specific wire hazards (pre-flight), and visual detection of wires (in-flight) varies from state to state and company to company. The 'Look up and Live' mapping is highly regarded. Some subsidies are also available for landowners to mark electrical wires.

The Invisible Enemy

While there has been a significant reduction in wire strikes over the past 50 years, they continue to pose an ongoing risk to aviation operators, particularly those conducting (but not limited to) aerial work operations and, most significantly, during aerial application activities. ➤



Fatalities due to wire strikes are disproportionately affecting sectors other than aerial work. This is due to more robust, higher-powered aircraft typically utilized in aerial work (and aerial application) than private and recreational operations. This means a wire hit by an aerial work aircraft is more likely to separate from the pole before causing significant damage to the aircraft.

Some electricity transmission towers, including in the NSW Hunter Valley, are actually painted green to blend in with the environment.

Awareness of wires relies on information being available and the pilot knowing where to find it. However, the quality of the data varies significantly from state to state. Queensland and NSW have tools for pilots to assess if wires exist in their area of operation or along their planned flight route, whereas other states do not. Aerial work and EMS pilots extensively use the existing tools, whereas private and recreational pilots are less likely to use them for pre-flight planning.

In 2011, a feature in Flight Safety Australia noted, 'Wire strike avoidance requires much more than running through a checklist.' That remains true.

Don't go there if flying in a wire environment can be avoided. For those whose work demands operating in a high-risk wire environment, seek training and access the resources available.

Be aware of local information and the atmospheric conditions around you. The wire is a barely visible hazard that poses a continuing risk to flight safety.

Flight Safety Australia: CASA's flagship aviation safety magazine. Topical, technical, reader-friendly articles cover all the key aviation safety issues – safety management systems, maintenance, runway safety, human factors, airspace, training, aviation medicine – and more.