# Aviation Safety

## WIRE STRIKES - THE HAZARD TO AVIATION

Safety Leaflet

IGA 6

**Wire strike accidents and serious incidents continue to be an all too common occurrence in the field of general or sport aviation. In Ireland, there have been 11 such accidents/serious incidents over the last 5 years one of which resulted in two fatalities and several others resulting in serious injury. The range of aircraft involved in these accidents includes fixed wing, helicopter, microlight, glider and paraglider and this serves to demonstrate that operating in a potential wires environment presents a hazard to all!**

**General Aviation by its nature can be carried out to/from airfields and landing strips that are not licensed and therefore it is unlikely that an accurate survey to identify hazards in the immediate vicinity has been carried out. Additionally, there are many other factors that have to be taken into account when considering the possibility, or not, of identifying wires during operations close to the ground.**

**A number of factors associated with power lines, such as the number of wires, the height of the wires, and the direction of the wire run, can determine whether or not a pilot sees a wire. Additionally, the material used to manufacture the wire can impact visibility, for example, copper wire oxidises to blue/grey – a difficult colour to distinguish against the traditional Irish 'emerald green' backdrop. Aluminium might offer a better contrast as it oxidises to silver. Single power lines are possibly the greatest hazard as they can be extremely difficult to detect from the air and can be encountered in the most unexpected places in rural areas. Other factors restricting visibility include the position of the sun, changing light conditions, background camouflage, the obscuring effects of terrain, and poor weather. A more obvious factor is a dirty windscreen.**

**Even if a wire can be seen, a pilot's ability to judge its position accurately may be reduced by a number of factors. For example, ambient temperature can change the location of the wire by causing the wire to sag or tighten, and windy conditions may cause sagging wires to be blown about. In addition, the ability to judge distance correctly can be distorted by optical illusions.**

**The ability to identify the presence of power lines can be facilitated by objects and landmarks on the ground. Buildings such as houses and sheds are likely to have power connected through above-ground wires. Roads may also provide a convenient path for power lines. Furthermore, supporting poles may offer clues as to wire direction and height. By identifying at least two poles, a pilot may be able to gauge the path of the wire. Insulators attached to the poles run in the same direction as the wire and may also assist in identifying the number of wires and their direction. The orientation of the insulators could indicate whether the wire continues in the same direction or turns a corner.**

**Although poles provide pilots with one of the most reliable indicators of the presence of wires, the poles themselves are not always easy to see. Wooden poles, in particular, can be easily camouflaged by the landscape or hidden by foliage and trees. Since poles are typically used by pilots to alert them to the presence of a wire run, the concealment of poles may increase the risk of a wire strike.**

**Risk mitigation strategies associated with low-level flying rely heavily on the level of situational awareness maintained by the pilot. Strategies used to establish and maintain adequate situational awareness include reading the physical structure indicators (i.e. orientation of insulators, presence of bucked arms and sighting two or more poles), self-discipline, pre-flight briefing, pre-flight reconnaissance and observation, memory and awareness, appropriate flying techniques, maintenance of a good visual scan and consideration of weather factors.**

**To assist pilots in the detection of wires, a number of non-human strategies have been developed, these include wire markers and owners/operators of private airfields and strips should consider working with the utility suppliers who operate wires in the vicinity of their airfield to identify those wires that pose a hazard and, where possible, incorporate some form of markers. Where this is not possible, the location and nature of wires in the vicinity should be detailed in an airfield/airstrip pilot briefing that should be available to both resident and visiting pilots.**

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