

THE AVIATION WIRE STRIKE HAZARD

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Article 1: THE AVIATION WIRE STRIKE HAZARD

The risk of aircraft collision with power lines is of major concern to utilities. So-called "wire strikes" occur an average of 250 times per year in the United States, and comprise some eight percent of all general aviation accidents.

The vast majority of these collisions take place when the aircraft is operating at less than 100 feet above ground level (AGL), which is common during takeoff or landing, low-altitude flight in remote areas, flight along rivers or other bodies of water, or utility operations such as construction, law enforcement or MEDEVAC. Most wire strikes therefore occur when the aircraft is operated under visual flight rules (VFR), in which the pilot is responsible for seeing and avoiding terrain, obstacles and other aircraft without the assistance of air traffic controllers. Most wire strikes result in total destruction of the aircraft and severe injury to occupants. Many result in fatalities. Litigation often follows, producing substantial liability claims against utilities as owners of the power lines. This litigation is remarkable both for its complexity and for the inconsistency of rulings by the courts.

Even the heaviest transmission lines are quite small in diameter in comparison to other obstacles pilots encounter. When viewed from the air where they may blend in with other surface features, power lines can become virtually invisible within distances of less than a mile. Even at slow operating speeds, an aircraft will cover this distance in less than 15 seconds. This provides precious little time for the pilot to recognize and react to the hazard. The aircraft itself may then lack sufficient performance capability to avoid the power lines within the distance remaining. This is true even of helicopters, which cannot transition abruptly from level flight to vertical flight, nor stop suddenly. Hot air balloons are even more vulnerable. Although they move slowly, they are driven by the wind and may drift unavoidably into power lines.

Under the Federal Aviation Regulations (FARs), the primary duty of a pilot is to operate an aircraft in a safe manner and avoid collision. What constitutes a safe manner is dependent upon a variety of factors, including forward visibility, altitude and geographic location. Regulations establishing safe altitude and minimum forward visibility for VFR operation are complex and filled with exceptions. For example, over densely populated areas, an aircraft must fly 1,000 feet or more above the highest obstacle located within a horizontal radius of 2,000 feet of the aircraft. In other than densely populated areas, an aircraft must fly 500 feet or more AGL - except over sparsely populated areas or open water, where it need only to be operated no closer than 500 feet to any person or structure. Terrain features and vegetation are not considered structures. Generally, pilots must maintain forward visibility of no less than three miles and at prescribed distances from clouds. However, at altitudes below 1,200 feet AGL in remote areas, considered uncontrolled airspace where the hazard of wire strikes may be greatest, pilots often need only to have one mile forward visibility and to remain outside of clouds. Clearly, an aircraft can be operated safely within the meaning of applicable FARs and remain in considerable peril of a wire strike.

Utilities Are Limited in Their Ability to Prevent Wire Strikes

The siting and configuration of power lines is often dictated by factors beyond the control of the utility, such as operational considerations, access to right-of-way and environmental concerns. Siting and configuration, therefore, is not always a realistic way to create the least possible hazard to aviation. As a result, utilities can do little more than attempt to warn pilots of the location and configuration of power lines. Normally, this information is conveyed prior to construction by notifying the Federal Aviation Administration (FAA), which may then depict the power lines on aeronautical navigation charts. A common misconception is that aeronautical navigation charts used for low-altitude flights depict the location of all major power lines. This is

untrue. Except near airports, the charts generally depict the location of only those power lines which extend 200 or more feet AGL or are easily visible from the air and, therefore, useful as a visual navigation reference. Those least visible, and thus posing the greatest hazard, are often least likely to be depicted. Hence, the central issue in wire strike litigation brought against utilities is usually whether the utility had a separate duty to warn pilots of the hazard by physically marking or illuminating the power lines themselves.

Three considerations may be useful to justify such a duty.

First, power lines must be constructed in compliance with the National Electrical Safety Code and any other applicable safety regulations. Failure to comply with these standards may constitute either negligence per se or evidence of negligence by the utility, which can then be difficult to overcome in subsequent liability litigation.

Second, power lines must be constructed in compliance with the FARs. The FARs require the FAA to be notified of any structure taller than 200 feet AGL or in proximity of a public airport. This notification requirement does not apply to private, non-federally licensed airports, however. Once notified, the FAA then determines if the structure constitutes an obstruction to air navigation. Normally, the FAA automatically designates any structure taller than 500 feet AGL or in proximity to a public airport as an obstruction to air navigation. Shorter structures are also frequently designated obstructions, depending upon location. Once designated so, the owner of the structure must then comply with the marking and lighting standards of FAA Advisory Circular 70/7460-IG. Even if not designated an obstruction to air navigation, the Advisory Circular recommends appropriate marking and/or lighting of any structure which is taller than 200 feet AGL or which may impair aviation safety because of its particular location. Failure by the utility to comply with the FARs may also constitute negligence per se, whereas failure to comply with the Advisory Circular may constitute evidence of negligence.

Third, because wire strikes frequently occur when the aircraft is operated in compliance with the FARs and the power lines conform with all applicable regulations but are not required to be marked or lighted, the courts have imposed upon utilities a further common law duty to warn. This duty is rooted in principles of negligence, and turns on whether the power lines are found to present an unreasonable and foreseeable risk of harm to the unknowing pilot, the probability of injury arising from this harm and its severity. Since the probability of injury and its severity are givens in wire strikes, resulting litigation focuses on the unreasonableness and foreseeableness of the risk of harm in determining whether to impose a duty to warn. Factors which courts have considered in imposing the duty include the relative visibility of the power lines, their color, surrounding terrain features and vegetation, prevailing weather conditions, configuration of the lines and supporting towers, their height, the number of wires, the distance between supporting towers, the regularity of tower placement to create an identifiable pattern, the attractiveness of the adjacent area for aviation sightseeing or other aviation activities, knowledge by the utility that aircraft operate near the power line, prior wire strikes near that location, the number of airports located within a given radius of the power line and the number of aircraft based at those airports. Thus, the decision to impose a duty depends on weighing the circumstances. For example, even in a densely populated area, a utility might be found to have a duty to mark even local distribution lines adjacent to a park where MEDEVAC helicopters occasionally land to evacuate accident victims from a nearby major highway.

Significantly, however hazardous the courts have found power lines to be, no court has ever imposed strict liability upon a utility under the doctrine of ultrahazardous activity, presumably because of the enormous social benefit derived from power lines. Nonetheless, courts in some jurisdictions have found power lines to be a dangerous instrumentality and required the owner to exercise a high degree of care in their operation and maintenance, separate and apart from that imposed by the FARs or other regulations. As with pilots,

courts have reasoned that the FARs set only the minimum safety standards, insufficient in circumstances that by their nature require greater care. This greater degree of care surpasses that of ordinary care normally imposed under principles of negligence, and can require a utility to exceed ordinary measures to prevent wire strikes. Hence, not only can a utility not find refuge in complying with all applicable regulations, but often it cannot find refuge even in safety measures that would otherwise suffice for the owner of a similar structure not involving power lines.

However, utilities are not de facto insurers of aircraft that operate near their power lines. Utilities frequently assert successful defenses in wire strike litigation. Generally, such defenses establish either that the pilot's own negligence should bar recovery, that no duty to warn existed under the circumstances, or that the conduct of another party constituted an intervening or superseding cause of the accident or damages.

The pilot's own negligence often provides the most successful defense. As noted above, the FARs place the primary responsibility for safe operation of the aircraft upon the pilot, who must comply with a wide range of regulatory and advisory standards, as well as the common law duty of reasonable care proportionate to the circumstances. Strict compliance often is difficult for the pilot, if not impossible. As with utilities, violation of regulations may constitute negligence per se, while failure to comply with advisory standards or common law duties may constitute evidence of negligence.

Pilot Negligence Assumes Many Forms

Pilots often fail to adequately prepare for a flight by obtaining all available information, including weather briefings, Notices to Airman and route information. They fail to properly utilize the correct navigational charts and aids, or to plan a safe course. Occasionally, their familiarity with the aircraft itself is inadequate, since pilots attempt to fly sophisticated aircraft which may exceed their skill level. Similarly, pilots may fail to maintain the required experience level for certain types of flights, such as in mountainous areas, darkness or winter conditions. Inexperienced pilots frequently suffer spatial disorientation in conditions of poor visibility, or they simply get lost. They may encounter fuel exhaustion, or overreact to a perceived emergency. The list is endless. Any one or combination of such acts or omissions may be sufficient to establish substantial negligence by the pilot.

Pilot negligence can reduce the utility's comparative negligence for failure to warn, causing a corresponding reduction in the amount of recoverable damages. In many jurisdictions, where negligence by the pilot is 50% or more compared to that of the utility, it will prevent recovery of any damages. At a minimum, evidence of pilot negligence will mitigate the jury's sympathy factor during deliberations.

For this reason, defense of a wire strike case should rarely rest solely on a denial of liability based upon the utility's compliance with all applicable regulations and standards, even if otherwise a strong defense. The case must be defended by putting the pilot on trial. Every deviation from accepted aviation standards should be used to point to negligence by the pilot.

The primary disadvantage of this defense is that it will not prevent successful claims by passengers, unless the pilot is found either 100% negligent or the sole proximate cause of the wire strike. Under the doctrine of joint and several liability (now modified in some jurisdiction is by tort reform legislation), if the utility is found as little as 1% negligent, it will remain liable to all passengers for the full measure of their damages. The only exception is when the pilot's negligence can be imputed to passengers under a theory of joint enterprise (they were all on a business trip) or other such doctrine. This exception is not a unique burden. A similar problem is routinely faced by the FAA in litigation brought against air traffic controllers. If air traffic controllers are found as little as 1% negligent in causing an accident, the United States Government is liable to all passengers for the full measure of their damages.

A No Duty to Warn Defense

In comparison, a defense based on no duty to warn usually extends to passengers as well as to the pilot, preventing recovery by either. This defense most often succeeds when it can demonstrate that the aircraft was being flown outside of "navigable airspace" when the wire strike occurred. The pilot and passengers may then be treated as trespassers onto the utility's property, and thus no duty is owed.

Navigable airspace is defined as the "airspace at and above the minimum flight altitudes prescribed ... [by law], including airspace needed for safe takeoff and landing." In other words, it exists wherever the aircraft is operated in compliance with the required minimum altitudes. Flight below those altitudes is considered flight outside of navigable airspace and frequently constitutes careless or reckless operation of the aircraft in violation of the FARs. Nonetheless, over sparsely populated areas or open water, or during takeoff and landing, navigable airspace extends essentially to the terrestrial surface and thus may only provide limited support for the defense of no duty to warn.

A duty to warn may also not apply if the following is true: the power lines conform with all applicable regulations and need not be marked, no previous nearby wire strikes had occurred, and the circumstances of the wire strike are so exceptional as to be unforeseeable, such as an unnecessary emergency landing or illegal low altitude "buzzing" by the aircraft. Courts have reasoned that the lawful use of land does not require the owner to anticipate and guard against every possible type of aviation mishap.

In some circumstances, a utility can argue that its duty to warn was secondary to that of another party, such as the operator of an airport adjacent to where the wire strike occurred, or even the FAA for failure to comply with its own guidelines to depict the power line on aeronautical charts. While the courts have recognized this dichotomy of primary/secondary duty, the party having the secondary duty normally will not be relieved of liability completely, but will merely gain another party with whom share payment of damages.

Occasionally, a defense of intervening or superseding cause may be asserted. If successful, this defense can also bar recovery by passengers. An intervening or superseding cause must be an act or omission by a third party of such independent origin as to relieve the utility of liability for its own negligence. This can take the form of negligence by air traffic controllers, improper maintenance or fueling of the aircraft by a third party, or a defect in the aircraft itself or some system, such as an engine or structural failure. An intervening or superseding cause need not cause the wire strike, but only the ultimate damage suffered by the occupants.

The poor "crashworthy" design of the aircraft, which has caused enhanced injuries, may provide the basis for this defense. For example, an aircraft which crash-lands intact after a wire strike, with no serious impact injuries to the occupants, may then erupt in flame due to poor crashworthiness of its fuel system, causing burn injuries not caused by the wire strike itself. The lack of crashworthiness may then constitute an intervening or superseding cause of the damages suffered.

The assertion of this defense depends largely on the circumstances of the wire strike, and its success cannot be reliably predicted. However, even if not fully successful in precluding liability by the utility, evidence of intervening or superseding cause may result in a finding of comparative negligence, requiring that other parties contribute to payments for damages.

Wire Strike Litigation Is Complex and Fact-Intensive

Whatever defenses are asserted, wire strike litigation is complex and fact-intensive. Extensive investigation and technical analysis is required. Numerous sources of information must be carefully examined. The

prompt assistance of specialized counsel and consultants is essential.

The utility's analysis of potential liability for a wire strike must begin immediately after the accident. Delay until suit is brought may result in a loss of critical evidence. Following a wire strike, the National Transportation Safety Board (NTSB) and the FAA will each dispatch an investigator to the crash site.

Efforts to assist these officials will be welcome, and may foster a beneficial relationship. The resulting NTSB Report summarizes the official government investigation. Although its conclusions are inadmissible as evidence, its factual findings are admissible and provide a wealth of information, ranging from weather conditions to pilot qualifications. Frequently, it will contain transcripts of FAA radio communication with the pilot and diagrams of the aircraft flight path, derived from air traffic control radar tapes (FAA radar tracks man aircraft operating under VFR). Many times, these may be the only sources of information about the pilot's actions leading to the wire strike, since few light aircraft are equipped with voice or data recorders. However, the NTSB does not always secure preservation of these materials or other FAA records. Because the Report will not be issued until months after the accident and the tapes are recirculated within days, defense counsel should contact the FAA immediately after the accident and request preservation of all relevant materials.

In addition to the NTSB Report, numerous other sources of information must be examined. Any investigative reports by local law enforcement or other agencies should be reviewed. These agencies will approach the accident from a different perspective than the NTSB investigation, which seeks primarily to prevent reoccurrence. Local agencies will usually devote more resources to investigation of a serious aviation accident because of its extraordinary nature, whereas the chronically understaffed NTSB has limited resources, which it must conserve in order to investigate major air carrier accidents.

The pilot's personal flight log books should be carefully examined to determine his or her level of experience, as well as to record previous flights in the vicinity of the wire strike. The log can demonstrate the pilot's familiarity with the area, and possible knowledge of the power lines. The pilot's FAA Airman file should be checked for any past safety violations. His or her FAA medical file should also be checked. The data form every pilot must complete during periodic medical examinations can provide a wealth of information, and occasionally may carry false statements by the pilot. Aviation books and periodicals, which the pilot routinely read, should be checked for warnings on the danger of wire strikes. The pilot's flight instructors should be interviewed and his or her flight instruction materials examined. Inevitably, instructors will testify that they emphasized the danger of power lines and how to avoid them. Instructional materials provide similar warning.⁵ Other pilots with whom the pilot flew should be interviewed to determine their skill level and habits.

Similarly, records pertaining to the aircraft itself must be reviewed. The FAA maintains an aircraft registry which provides information on each owner of every U.S. registered aircraft. Prior owners may provide useful information about the aircraft or, its current owner. Each aircraft will have a permanent log, known as the airframe log, describing maintenance of the aircraft structure, and a separate permanent log describing maintenance of each engine. All significant maintenance, along with the repair following any prior accident, will be described therein.¹

This list is not exhaustive, merely introductory. Its purpose is to emphasize the importance of prompt and detailed investigation. Numerous other sources of information exist which can provide useful facts.

Defense of a wire strike case is a formidable task carrying high stakes for any utility, both financially and in terms of public image. Because of its technical complexity and the inconsistent rulings by courts, an effective defense requires prompt action and specialized assistance. The utility then may well obtain a

successful outcome.

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