Evidence tables: Summary of aeromedical incidents (2013-2014)

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ABSTRACT
Aeromedical transportation industry has grown significantly over the past two decades, with a corresponding increase in air ambulance crashes. The purpose of this report is to provide the reader with a concise update on aeromedical incidents that occurred between January 1, 2013 and December 31, 2014. In addition, two pre-2013 incidents that were not listed in last year’s report were included in the current issue. This evidence table, in conjunction with other sources of data regarding aeromedical incidents, provides an excellent foundation for further research in this important area of public health, transportation and patient safety.

BACKGROUND, DEFINITIONS, AND METRICS
[Background] According to various sources, the number of aeromedical transports has been rapidly growing around the globe [1, 2], with an accompanying increase in crashes and deaths [3-8]. [Purpose] To provide a comprehensive summary of all readily searchable reports of aeromedical transportation incidents/crashes between January 1, 2013 – December 31, 2014; In addition, two pre-2013 incidents not previously reported in last year’s summary were also listed [2]. [Evaluation Methods] Various web resources were identified, reviewed and selected, including the National Transportation Safety Board (NTSB) database and other air safety Internet sources [9, 10]. This evidence table represents the authors’ best effort to identify and include as many aeromedical incidents as possible; however, it is likely that some events may not have been captured, either due to limited reporting or incomplete supporting documentation.

<table>
<thead>
<tr>
<th>Basic Information (Location, Date)</th>
<th>Known Course of Events</th>
<th>Aircraft type; Circumstances; Possible Causes</th>
<th>Comment; Supplemental Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wichita Falls, Texas, USA (2014, October) [11-14]</td>
<td>The helicopter was operated by Air Evac Lifeteam. The aircraft was transporting a patient from Waukau, Oklahoma to United Regional Health Care in Wichita Falls, Texas. Approximate distance between flight origin and destination was 35 miles. Time of crash: Saturday, Approximately 01:50 am LT.</td>
<td>Helicopter type: Bell 206-L-1+ (LongRanger III). Location &amp; Circumstances: The crash occurred at the intersection of Ninth and Grace streets, next to a parking lot. Approximately 300 feet from landing pad. The aircraft managed to avoid nearby structures. The helicopter was found by firefighters on fire but intact. Possible cause: According to NTSB, “...the helicopter collided with power lines and came to rest inverted between two trees that lined a public sidewalk about one block northeast of the helipad” [14]. Immediately prior to the crash, the pilot decided to abort the approach. At this point, with about ¼ to ½-inch of left anti-torque pedal applied, he added power, “tipped the nose over to get airspeed,” and “pulled collective.” The helicopter suddenly entered a rapid right turn. The pilot attempted to unsuccessfully control the helicopter, but was unable to regain control. He also said the engine had ample power and was operating fine. The pilot recalled the helicopter spinning at least five times before ground impact [14].</td>
<td>The patient being transported died at the crash scene. The pilot was listed in serious but stable condition at United Regional Health Care, Wichita Falls, Texas. The flight nurse and paramedic were in critical condition at the Parkland Hospital burn unit, Dallas, Texas [13].</td>
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<tr>
<td>Grand Manan, New Brunswick, Canada (2014, August) [15-18]</td>
<td>The aircraft was registered to Atlantic Charters out of New Brunswick. The airplane was heading to airlift patients from Grand Manan Island to a hospital on New Brunswick. Time of crash: Saturday, Approximately 05:00 am LT.</td>
<td>Airplane type: Twin Engine Piper PA-31-325 Navao. Circumstances: The aircraft was returning to Grand Manan Island after flying a patient to Saint John Regional hospital on the New Brunswick mainland; The plane was traveling in reportedly foggy conditions. While attempting to land at Grand Manan Island airport the pilot carried out a missed approach [18]. During the second approach with the landing gear extended, the aircraft touched down on a road that was perpendicular to the runway about 450 meters from the threshold [18]. The aircraft departed the road and continued through approximately 30 meters of brush before becoming airborne; The plane then impacted the ground left of the runway centerline about 300 meters from the threshold [18]. Possible cause: Investigation is ongoing, with possible causal factors including GPS malfunction, pilot error, and/or weather conditions.</td>
<td>Of the 4 people on-board, one of the pilots and a paramedic suffered fatal injuries while a second pilot and a registered nurse suffered minor injuries. There were no patients aboard during the crash [18].</td>
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Keywords: Evidence table, Aeromedical incidents, Air ambulance safety; Medical helicopter; Medical ambulance crashes.

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<table>
<thead>
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<tr>
<td>Las Cruces, New Mexico, USA</td>
<td>Aircraft involved: Cessna 421 Golden Eagle</td>
<td>Location &amp; Circumstances: The crash occurred near Las Cruces Airport, close to Southern New Mexico State Fairgrounds; The air ambulance was transporting a patient from Phoenix who was undergoing specialty treatment in Las Cruces; The patient was returning to Phoenix for further treatment; The aircraft crashed and burst into flames shortly after departing from Las Cruces Airport</td>
<td>Victims included the pilot, a flight paramedic, a flight nurse, as well as the patient</td>
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<td>Tucumcari, Guadalupe County, New Mexico, USA</td>
<td>Helicopter type: Agusta 109-E [23]</td>
<td>Location &amp; Circumstances: The aircraft crashed into a mesa and burst into flames approximately 2 miles north of Newkirk, near Interstate I-40, about 34 miles from Tucumcari [21, 22]; The crash occurred at local ranch, and according to the ranch manager, &quot;...everything burned except for the very end of the tail&quot; [21]</td>
<td>The entire three-person flight crew (pilot, flight nurse and flight paramedic) died during the crash [22, 23]</td>
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<td>Texarkana, Texas, USA</td>
<td>Aircraft type: Airbus Helicopter AS350-B-2</td>
<td>Location &amp; Circumstances: The flight was about 1,000 feet above ground level, approximately 5 minutes from the Texarkana hospital; The pilot reported that he noticed his rotor was increasing in RPM’s, following which he attempted to salvage the flight before ultimately deciding to perform an autorotation and crash landing in a farm field; During the autorotation, the rotors contacted and partially destroyed the tail boom</td>
<td>There were no casualties during this incident; All 4 occupants including the pilot, 2 crew members and 1 passenger were all uninjured</td>
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<td>Albuquerque, New Mexico, USA</td>
<td>Helicopter type: Aerospatiale AS350-B-3 [29]</td>
<td>Location &amp; Circumstances: Shortly after takeoff from the helipad, the helicopter appears to be spinning out of control, followed by a crash on the roof of the hospital, within a few feet from the helipad [26]; Hospital security personnel rushed to the burning helicopter in order to help the pilot and crew to safety [28]</td>
<td>Three people were injured in the crash [26]; The automated sprinkler system around the helipad deployed immediately after the crash [29]</td>
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<tr>
<td>Grombilla, Nabeul Province, Tunisia</td>
<td>Airplane type: Antonov An-26-B Transport [32]</td>
<td>Location &amp; Circumstances: As the plane was making its descent into Tunis-Carthage Airport, the crew reported an engine fire; The flight was reported to crash about 37 miles from Tunis, Tunisia [33]</td>
<td>A heavy, 125-ton crane was required in order to remove the wreckage from the hospital roof [28]</td>
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*References*
- [19, 20]
- [21, 22]
- [24, 25]
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<td>Sollinga, Buskerud, Norway (2014, January) [34-37]</td>
<td>The helicopter was registered to Norsk Luftambulanse of Loenvik, Norway. Craft was en route to a motor vehicle accident, approximately 15-25 miles north of the capital Oslo when it crashed [36, 37]. Time of incident: Tuesday; Approximately 10:00 am LT</td>
<td>Craft: Eurocopter EC135-P2 Location &amp; Circumstances: The helicopter was heading to the scene of an overturned tractor trailer when it crashed near the scene [37]. It was reported that the main rotor of the helicopter contacted power lines before it crashed. It was carrying three crew members but no patients at the time of the crash Possible causes: The direct cause of the crash was collision with power lines; According to witnesses, the helicopter started to lose altitude, followed by sparks from the electric power line, with the ensuing crash and a large cloud of smoke [36]</td>
<td>Anesthesiologist and another crew member suffered fatal injuries; One crew member survived with serious injuries [34]</td>
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<td>Oberwiesenthal, Germany, EU (2014, January) [38-40]</td>
<td>The helicopter was operated by Mountain Rescue Oberwiesenthal [38]. The aircraft was trying to land, but encountered severe difficulties due to local conditions on the slope [38]. Time of incident: Sunday; Approximately at “Lunch time”</td>
<td>Aircraft: Eurocopter 135-P2 Location &amp; Circumstances: The helicopter attempted to land once, but was unable to complete the maneuver successfully; Consequently, another attempt was made unsuccessfully; and the aircraft slid down the slight (but snowy) mountain slope, coming to a stop after colliding with a parked snowmobile and other objects on the ground [39, 40] Probable causes: Combination of pilot error and local conditions on the mountain slope</td>
<td>No fatalities or injuries were reported</td>
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<td>Fort Lauderdale, Florida, USA (2013, November) [41, 42]</td>
<td>The aircraft was registered to AirEvac International. The Learjet was en route back to the base in Cozumel, Mexico after dropping off a patient in Fort Lauderdale, Florida. Time of crash: Wednesday; At 19:56 pm</td>
<td>Airplane: Learjet 35 (manufactured in 1979) Location &amp; Circumstances: The air ambulance had just completed a flight from San Jose, Costa Rica and was positioned at the Fort Lauderdale/Hollywood international Airport. Plane proceeded to leave the runway at 19:50 pm local time. At an altitude of 2,200 feet, the pilot requested vectors back to the runway because of engine failure. When instructed to maintain 4,000 feet and turn heading 340 degrees, the pilot replied not possible and requested 180 degree vectors. At 19:52 pm, the plane declared mayday and began a rapid descent. Despite instructions from the air traffic controller, the plane continued to descend until radar contact was lost at 19:55. Weather was favorable with few clouds. Wreckage was subsequently identified on the ocean surface [42] Possible causes: Engine failure</td>
<td>The bodies of two of the four victims on the plane were found; The other two people remain missing The airplane was registered in Mexico [42]; Most recent airworthiness inspection took place just 15 days prior to the crash [42]</td>
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<tr>
<td>Akureyri, Iceland (2013, August) [43-45]</td>
<td>The aircraft was registered to Air Myflug. The plane had just transported a patient to Reykjavik and was returning to Akureyri when it was placed on hold to the west of the airport, where the drag strip was being prepared for an air race. The plane then crashed just northwest of the Akureyri Airport [45]. Time of crash: Monday; At 14:59 pm LT</td>
<td>Craft: Beechcraft B200 Super King Air (manufactured in 1983) Location &amp; Circumstances: Upon returning to Akureyri Airport, Iceland, the air ambulance was instructed by air traffic control to follow a holding pattern since another plane was about to take off from the airport; During a second approach, the plane attempted to align with the runway before its engine stalled. The left wing struck the ground and the aircraft crashed about 4 km northwest of the airport. The plane burst into flames upon impact Possible causes: Engine failure and pilot error are both possible in this scenario; Formal investigation results are pending</td>
<td>One pilot and the physician died from their injuries a few hours after the crash while the other pilot sustained relatively minor injuries [46]</td>
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<td><strong>Lake Eldon, Victoria, Australia</strong> &lt;br&gt;(2013, August) &lt;br&gt;[46, 47]</td>
<td>The aircraft was operated by Ambulance Victoria &lt;br&gt;The craft was in the process of picking up a man who had just broke his ankle while hiking with a group in Macs Cove at Lake Eldon, near Mansfield northeast of Melbourne &lt;br&gt;Time of fatal incident: Saturday; Approximately 10:30 am LT</td>
<td>Helicopter type: Bell 412-EP &lt;br&gt;Location &amp; Circumstances: The aircraft flew into the hills around Macs Cove after receiving report of a man who had broken his ankle; The helicopter crew noticed that the area was heavily wooded and decided to use a double lift extraction as opposed to a stretcher secondary to possible contact with the trees or fouling; As the helicopter began winching the patient and the paramedic up into the helicopter they noticed that the patient started to slip when he was about 40 feet off the ground and about 15 feet from the helicopter; When the patient and the paramedic were at the helicopter the patient had almost completely slipped away; The paramedic attempted to grab the patient’s shoulder to prevent him from falling but failed in doing so; The patient then fell approximately 40 feet to his death; The patient’s weight was reported at approximately 100 kg</td>
<td>The patient who was being rescued died as a result of the fall, as previously outlined</td>
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<td><strong>Pitt Meadows, British Columbia, Canada</strong> &lt;br&gt;(2013, March) &lt;br&gt;[48-50]</td>
<td>The aircraft was operated as HelJet BC Ambulance [48] &lt;br&gt;The helicopter was taking off after picking up an injured patient in Pitt Meadows, B.C. &lt;br&gt;Time of crash: Saturday; Daylight hours (exact time not specified) [48, 49]</td>
<td>Helicopter type: Sikorsky S-76-A [50] &lt;br&gt;Location &amp; Circumstances: After loading the patient, the helicopter hovered over a two-lane local road, then swung slightly toward telephone wires, clipped them, and immediately performed an emergency landing [48, 49]; The helicopter subsequently required rotor blade replacement before being re-flown [49] &lt;br&gt;Incident cause: The mishap was due to pilot error; More specifically, the pilot seems to have misjudged the distance involved in the delicate maneuvering to avoid telephone wires during takeoff [48]</td>
<td>No injuries were reported; The pilot safely landed the aircraft immediately after striking the telephone wires [48, 49] &lt;br&gt;The pilot had 15 years of flying experience [48]</td>
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<tr>
<td><strong>Manchester, Clay County, Kentucky, USA</strong> &lt;br&gt;(2013, June) &lt;br&gt;[51-53]</td>
<td>The aircraft was registered to, and operated by, Missouri-based Air Evac EMS, Inc. &lt;br&gt;The flight originated from the St. Joseph Hospital in London, Kentucky &lt;br&gt;Time of crash: Thursday; At 23:15 pm</td>
<td>Craft: Bell 206-L-1 &lt;br&gt;Location &amp; Circumstances: Elementary school parking lot near Manchester, Kentucky; Location of crash was approximately 750 feet from the intended landing area; The helicopter was approaching the operator’s private helipad when the crash occurred; The last two transmissions from the aircraft included the pilot reporting arriving at the base around 23:12 pm, followed by an unidentified male voice recording at approximately 23:15 pm; The craft approached from the west, turned southeast and flew over the intended landing site about one mile. It then turned north, followed by a turn westward, followed by another southeast turn before the crash</td>
<td>The helicopter did not have a “black box” but did have devices that record altitude and speed; There is also security camera recording of the crash &lt;br&gt;Upon impact, the helicopter exploded, killing all on board [the pilot and two medical workers] [53]</td>
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<td><strong>Talihina, Oklahoma, USA</strong> &lt;br&gt;(2013, June) &lt;br&gt;[54, 55]</td>
<td>The helicopter was registered to JP Morgan Chase Bank of Columbus, Ohio and operated by EagleMed LLC &lt;br&gt;The aircraft was en route from Choctaw Nation Healthcare Center in Talihina, Oklahoma to St. Francis Hospital in Tulsa, Oklahoma &lt;br&gt;Time of Incident: Tuesday; At 19:30 pm CST</td>
<td>Helicopter type: Eurocopter AS 350-B-2 &lt;br&gt;Location &amp; Circumstances: After taking odd from a road next to an already occupied helipad, EagleMed 35 crashed and sustained heavy damage, resulting in the death of the patient and injuries to the crew. Upon initially arriving at the Choctaw Indian Hospital Heliport, the pilot reported that there was another helicopter already positioned on the single space helipad. Consequently, the pilot decided to land and shut down on the asphalt surface adjacent to the helipad. EagleMed 35 remained parked on the asphalt until 1 hour after the helicopter on the helipad departed, approximately 18.28 pm CST. At this time, the medical crew and passenger were loaded into the aircraft and proceeded on the planned westbound path &lt;br&gt;Possible cause: Failure of the pilot to follow helipad protocols; Approximately 175 feet from the takeoff location, the left side of the rotor blade disk struck a 41 foot metal light pole on the left side of the road. The pilot lost control of the helicopter and it came to a rest on the right side about 230 feet from initial takeoff position [55]</td>
<td>The patient being transported died; The flight nurse was critically injured; The pilot and a flight paramedic sustained minor injuries</td>
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<td>Moosonee, Ontario, Canada (2013, May) [66-59]</td>
<td>The aircraft was operating as Ornge Air Ambulance&lt;br&gt;The helicopter just departed for Attawapsak First Nation Reserve in northern Ontario to pick up a patient&lt;br&gt;Time of crash: Friday, At 00:11 am ET</td>
<td>Craft: Sikorsky S-76A helicopter (built in 1980) [58]&lt;br&gt;Circumstances: The helicopter was on the way to pick up a patient at Attawapsak First Nation Reserve when it crashed shortly after takeoff. Upon impact, the aircraft caught fire approximately 1 kilometer away from its origin airport in Moosonee, Ontario, Canada [58]&lt;br&gt;Possible cause: Pilots involved in the crash may have been inadequately trained for nighttime flight; According to veteran pilots, “…the two pilots would have faced an irky, disorienting darkness soon after takeoff from the remote airport, the very situation that has caused pilots in the past to lose control…” [59]. Multiple charges have been brought upon the company including its failure to train its pilots adequately, failure to ensure employee safety, and failure to inform employees about the Canada Labor code</td>
<td>All occupants the aircraft, including two pilots and two paramedics suffered fatal injuries [58]</td>
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<td>Oklahoma City, Oklahoma, USA (2013, February) [60, 61]</td>
<td>The helicopter was operated by EagleMed LLC&lt;br&gt;The aircraft was leaving Integris-Baptist Medical Center and returning to its home base in Watonga in order to pick up a patient when the crash occurred; The planned destination was about 70 miles away from the flight origin [61]&lt;br&gt;Time of crash: Friday, Just before 05:45 am LT</td>
<td>Aircraft type: Eurocopter AS 350-B-2&lt;br&gt;Location &amp; Circumstances: A loud explosion was reported by local residents as the helicopter crashed between St. Ann’s Retirement Center and St. Ann’s Nursing Home near NW Expressway and Council in Oklahoma City; Following the initial explosion, a secondary one was reported a few minutes later [60]. Three nurses from the immediately adjacent facilities, along with people passing by, were able to pull the medic from the wreckage right before the secondary explosion [80]&lt;br&gt;Probable cause: According to witness accounts, there was a “flash” in the sky, followed by the rapid fall of the helicopter and the subsequent crash between nearby buildings [61]: Formal investigations have not yet provided conclusive answers</td>
<td>The pilot and a flight nurse were killed; The medic survived but was critically injured [60]&lt;br&gt;The pilot’s family subsequently filed a wrongful death lawsuit against Airbus Helicopters, Honeywell and Soloy; The complaint alleges that the Honeywell LTS-101 engine may be at fault in the crash [62]</td>
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<tr>
<td>Cromwell, Seminole County, Oklahoma, USA (2013, January) [63, 64]</td>
<td>The aircraft was operated by Air Methods Corporation as Tulsa Life Flight (which also owns MedFlight) [63]&lt;br&gt;The aircraft was on its way from Seminole Regional Airport to Okemah to pick up a patient at a local hospital [63]&lt;br&gt;Time of crash/incident: Wednesday; Approximately 12:42 pm LT</td>
<td>Helicopter type: Eurocopter EC 130-B-4&lt;br&gt;Location &amp; Circumstances: The aircraft had just taken off from the Seminole Regional Airport at 12:42 pm when it lost engine power [64]. According to the pilot, as the helicopter was climbing through about 1,000 feet of altitude he heard a sound “…as though something had struck the helicopter and the engine stopped producing power” [64]. The pilot performed an autorotation and landed in a field, narrowly missing power lines and a barbed wire fence [64]&lt;br&gt;Probable cause: It is believed that the helicopter’s engine has failed [63, 64]. According to subsequent NTSB investigation, the loss of engine power may have been due to “ice ingestion” into the engine; Furthermore, investigators found damage to four of the blades on the axial compressor; The NTSB report further reads, “…for 3 days before the accident flight, the helicopter was parked outside without its engine cover installed and was exposed to light drizzle, rain, mist, and fog. The engine inlet cover was installed the day before the accident at an unknown time. The helicopter remained outside and exposed to freezing temperatures throughout the night until 2 hours before the flight…”; In addition, “…maintenance personnel kept the helicopter ready to go and performed daily preflight/airworthiness checks, but never checked the inlet to the first-stage of the axial compressor to make sure it was free of ice…” [64]</td>
<td>The pilot and his three crew members were seriously hurt, but survived [84]&lt;br&gt;According to the NTSB, the company that operated the aircraft, Air Methods Corporation, as well as the engine builder and the FAA have all issued recommendations about operating helicopters in icing and/or snowy conditions following this incident [84]</td>
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<td>Budziszów Wielki, Jaworski Powiat, Dolnośląskie Voivodship, Poland, EU (2009, February)† [65, 66]</td>
<td>The aircraft was registered to Lotnicze Pogotowie Ratunkowe (translation, Air Rescue Services) of Poland</td>
<td>Helicopter type: Mi-2</td>
<td>Two crew members died – the pilot and the flight nurse. Third crew member – the flight physician – survived with serious injuries. In 2010, the Air Rescue Services began transition from the Mi-2 fleet of helicopters to Eurocopter E135 machines [69]</td>
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<tr>
<td>Kahului, Maui, Hawaii, USA (2006, March)† [67-71]</td>
<td>The airplane was registered to Hawaii Air Ambulance</td>
<td>Aircraft type: Cessna 414</td>
<td>All three people on board died, including the pilot, the assistant chief flight nurse, and a paramedic. The dealership closed approximately 17:45 pm, thus avoiding potential injuries or fatalities on the ground [67]</td>
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### Known Course of Events

- **The aircraft was registered to Lotnicze Pogotowie Ratunkowe (translation, Air Rescue Services) of Poland**
- **The flight (Ratownik 13 or ‘Rescue 13’) was traveling from Wroclaw, Poland to an accident scene on highway A4, near Budziszów Wielki, to pick up a patient**
- **Time of crash: Tuesday; Approximately 07:48 am**

- **The airplane was registered to Hawaii Air Ambulance**
- **The plane was traveling from Honolulu to Kahului, Hawaii to pick up a patient**
- **Time of crash: Thursday; 19:15 pm HST**

### Aircraft type; Circumstances; Possible Causes

- **Helicopter type: Mi-2**
- **Location & Circumstances: The helicopter crashed in a rural area, separated from the highway by tall trees [66]. The crash site was near Jaroslow, with aircraft fragments spread over a large area around the main crash site [66]. Witnesses described an abrupt increase in engine volume, followed by the crash approximately 5 seconds afterwards [66]. Due to the dense fog in the area, the location of the aircraft had to be triangulated based on the surviving flight physician’s cellular phone signal [68]. The wreckage was found around 09:10 am, or nearly 1.5 hours after the crash [65, 66]**
- **Probable cause: Around the time of crash, weather conditions were extremely difficult, including heavy snow and dense fog, visibility limited to approximately 10 meters [65, 66]**

- **Aircraft type: Cessna 414**
- **Location & Circumstances: The crash location was at a car dealership in Kahului. According to witnesses, the plane crashed into the car lot, resulting in a primary explosion and a fireball, followed by secondary explosions of at least two of the vehicles**
- **Possible cause: According to witnesses, the plane was identified as being ‘in trouble’ at about 500 feet off the ground, at which point ‘...looked like it was being buffeted by wind. Its engine sounded weak...’ [67]. The plane then banked to the right [67] while falling at the same time [68]. It was last seen intact about 20 feet above roofs of local businesses before crashing into the car dealership [70]. The official cause of the crash was determined to be left engine loss, followed by the pilot’s failure to execute the published emergency procedures pertaining to configuring the plane for single engine flight [71]. The resulting failure to maintain minimum controllable airspeed led to stall and roll at a low altitude, followed by the crash [71]. Operator’s inadequate pilot training in single engine flight regime was also cited [71]**

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### Table legend:

- CST = Central Standard Time; ET = Eastern Time; EU = European Union; FAA = Federal Aviation Administration; LT = Local Time; MT = Mountain Time; NTSB = National Transportation Safety Board; PDT = Pacific Daylight Time; VFR = Visual Flight Rules; † Incidents occurred prior to 2013 but were not previously reported in this cycle of articles

### REFERENCES


Ambulance-Crash222614-1.html.


Norwegian-air-ambulance-crash.


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