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Avoiding Fatal General Aviation Accidents

Top 10 Cause #6: Initial Climb-Aerodynamic Stall

Scenario 1: Mooney M20C

The pilot, who had recently purchased a half share of the airplane, and two passengers were on a local area flight and had stopped at the airport for dinner. The accident occurred as the flight was departing to return to their home airport. A witness reported that once airborne the airplane was "porpoising" up and down as it flew towards him. As the airplane neared the end of the runway, he saw it make a steep climbing left turn. The airplane then rolled inverted and descended towards the ground in a near-vertical nose-down attitude. The airplane impacted a palm tree and a vehicle that was parked on the residential street located just south of the airport. After the airplane impacted the ground, the witness saw an explosion and a fire ball. A postcrash fire largely consumed the wreckage. An examination of the engine showed no discrepancies that would have precluded power from being developed prior to impact. There was no evidence of structural, powerplant, or systems failure. All of the airplane's primary structure and flight controls were accounted for at the accident site. Primary flight control system continuity was established. The fuel selector valve was selected on the left tank. Flaps and landing gear were retracted and the tail trim was measured and found to be set for takeoff.

NTSB Probable Cause: The pilot's failure to maintain airspeed and aircraft control, resulting in an aerodynamic stall.

Scenario 2: Lancair IV-P

Air traffic controllers reported that shortly after takeoff, about the time the landing gear was being retracted, they observed smoke trailing from the airplane. The controller advised the pilot of the smoke, but did not receive a response. Additional witnesses reported that the airplane made an abrupt climbing left turn with the wings rocking back and forth before it nosed down and descended in a near-vertical attitude to ground impact. All flight control surfaces were accounted for at the accident site and all airplane components were found in the immediate area of the impact location. Due to fire and thermal damage to the majority of the composite airframe structure, establishment of control continuity was not possible. Teardown inspection of the engine did not disclose any evidence of a mechanical failure or malfunction. Investigators were unable to determine the cause or origin of the reported smoke during departure.

NTSB Probable Cause: The pilot's failure to maintain an adequate airspeed during climb out resulting in an aerodynamic stall/spin.

Scenario 3: Grumman American AA-1C

The instructor and student pilot had completed one touch-and-go landing and the airplane was in the departure climb, when the pilots were instructed by an air traffic controller to "make right traffic." The airplane entered a right turn, and was observed at a "high angle of attack" just prior to entering a descending 90-degree right bank. The airplane struck a parked trailer and skided across the ground, coming to rest under a row of parked trailers. A post-crash fire ensued. Examination of the airplane and engine revealed no pre-impact mechanical anomalies. The Pilot Operating Handbook (POH) for the airplane listed a stall speed of approximately 65 mph at a

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bank angle of 20 degrees, and 90 mph at a bank angle of 60 degrees. The POH listed a rotation speed between 60 and 65 mph and a normal climb speed of 95 mph.

NTSB Probable Cause: The flight instructor's failure to maintain airspeed which resulted in an inadvertent stall.

Scenario 4: Talon XP

During the takeoff, the experimental light-sport airplane flew level, about 50 feet above the runway, until about 900 feet of runway remained. The airplane then pitched up "sharply," and climbed to about 150 feet before it entered a stall and pitched nose down. The airplane impacted the ground at a near 60-degree angle and "exploded." Examination of the wreckage revealed no obvious mechanical deficiencies with the airframe or engine. The pilot held the necessary pilot certificate required to operate the airplane, and had accumulated 225 total hours of flight experience, with 142 hours in the accident airplane make and model. Doxazosin, a prescription medication that lowers blood pressure and can reduce G-tolerance, was found on post-mortem toxicology testing. No definitive determination could be made as to any role of the medication in the accident.

NTSB Probable Cause: An inadvertent stall during the initial climb.

Scenario 5: SAL 2/3 P-51

The owner of the amateur built, automotive-engine-powered airplane decided he lacked the experience in tailwheel-equipped airplanes to perform a maintenance flight, and arranged for another pilot to fly the airplane after resolving a rough running engine issue. A review of video footage of the flight revealed that after capturing the takeoff and initial climb, the videographer announced "he's close to a stall," and lowered the camera. The descent and impact were not captured, but the sound of the engine was recorded. Review of the audio track of the video revealed smooth, continuous engine sound until the sounds of impact. According to one witness, the tailwheel was raised almost immediately, and the airplane was airborne after a brief ground roll. The climb was "poor" and the airplane's altitude above the ground reached only 200 feet, after a 4,000 foot-long initial climb. He said, "The [pitch] attitude of the aircraft was quite high and seemed close to a stall condition." He added that the engine did not "falter" or change power/rpm throughout his observation of the flight. Examination of the wreckage by Federal Aviation Administration aviation safety inspectors revealed no evidence of any preimpact mechanical anomalies.

NTSB Probable Cause: The pilot's failure to maintain adequate airspeed during the initial climb, which led to an aerodynamic stall.

Scenario 6: Beech A55 Baron

The commercial pilot was attempting to land the twin-engine airplane on a 3,594-foot-long and 49-foot-wide asphalt runway. Witnesses said the airplane appeared to be too fast on the approach and was "floating" down the runway, and never touched down. When the airplane reached the end of the runway, the witnesses heard the sound of power increase on both engines and saw the airplane begin to climb. The airplane then banked to the right and nosed over into trees located adjacent to the runway. An examination of the airplane and its engines showed no mechanical deficiencies.

NTSB Probable Cause: The pilot's failure to maintain control of the airplane during an aborted landing for undetermined reasons.

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Scenario 7: Soneri II

The accident flight was the pilot's first flight in the amateur-built, experimental airplane he had purchased about 7 months prior to the accident. A witness reported that the pilot was taxiing up and down the runway while revving the engine. The witness stated that the engine was missing on at least one cylinder during takeoff. He stated that the airplane climbed and made a left turn directly over his house, clearing it by about 80 feet. While in the turn, the wings dipped to the right, and then the wings dipped to the left "real hard." The airplane rolled inverted and went down nose first. A Federal Aviation Administration airworthiness inspector examined the wreckage at the accident site. The inspection of the airplane revealed flight control continuity. The engine was a Continental O-200 series engine, but the engine data plate was missing so the exact model and serial number could not be identified. The mechanical and electrical engine controls were present. The magneto P-lead wires were still attached to the ignition switch and magnetos. There was oil in the engine and the crankshaft could rotate but not "very far." The pilot had a history of depression, anxiety, and sleep apnea, and had been prescribed multiple medications for the conditions. The level of a prescription antidepressant found on post-accident toxicology was more than 10 times higher than expected given the pilot's prescription for the medication. He had broken his left ankle, and had surgical screws placed for the non-healing fracture a week prior to the accident. He had recently taken narcotic and over-the-counter pain medications. The pilot had not reported any of his chronic health problems to the FAA, and it is unlikely that the FAA would have approved medical certification for him had complete information been provided.

NTSB Probable Cause: The pilot's failure to maintain airspeed during initial climb which resulted in a stall/spin. Contributing to the accident was the degraded engine performance.

Scenario 8: Antares MA-33

A witness reported that the pilot departed from the grass airstrip in the weight-shift controlled aircraft about three minutes prior to the accident. He reported that the aircraft was about 100 - 150 feet above ground level. He stated, "The plane seemed to go up and then the left wing dipped, and then the airplane spiraled to the ground." He reported that the engine was running. The impact damage to the aircraft was consistent with a steep, nose down attitude. The inspection of the aircraft's weight-shift control system revealed no preexisting anomalies. The inspection of the aircraft logbook indicated that the last conditional maintenance inspection was conducted on December 15, 2006. A review of the aircraft experimental operating limitations as of August 28, 2005, item #18, stated that, "No person shall operate this aircraft unless the preceding twelve calendar months it has had a conditional inspection performed, and recorded in the aircraft maintenance records." The certificated Private Pilot had 1250 hours logged include 8 in the make and model.

NTSB Probable Cause: The pilot's failure to maintain adequate airspeed resulting in an aerodynamic stall.

Flying has risks. Choose wisely.

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