

CEN18FA003

FACTUAL NARRATIVE CHANGES

HISTORY OF FLIGHT

On October 4, 2017, at ~~1108~~about 1107 central daylight time, ~~N428AP, an amateur built Schaffer Fisher~~an amateur-built Horizon 2 airplane, N428AP, collided with ~~the~~ terrain in Eden Prairie, Minnesota. The private pilot was fatally injured, and the airplane was destroyed by impact forces and ~~a~~ postimpact fire. The airplane was registered to ~~and operated by a private individual as a~~the pilot who was operating it under the provisions of Title 14 Code of Federal Regulations Part 91-personal flight. Visual flight rules conditions existed near the accident site at the time of the accident, and a flight plan had not been filed. ~~The local flight for the local personal flight, which~~ departed from ~~the~~ Flying Cloud Airport (FCM), Eden Prairie, Minnesota, about 1103.

The pilot was conducting the first flight in his Horizon 2 airplane since building it. According to the FCM ~~airport~~ tower controller, ~~the pilot departed on runway 28R. The controller reported that after the airplane lifted off from runway 28R,~~ the pilot aborted the ~~first~~ takeoff attempt for unknown reasons. The pilot taxied the airplane back to the end of the runway and ~~took off. Witnesses on~~hen took off again.

One witness at the airport reported that the airplane was "unstable" during the takeoff. ~~One~~Another witness reported that it appeared as if the airplane "became airborne too soon ~~and the airplane~~ settled back on the runway" before lifting off a ~~second time~~again. Witnesses also described the airplane struggling to gain altitude, pitching up and down, and banking during the takeoff. One witness stated ~~he was able to~~that he could see the top of the wings, as if the airplane was straight up and down, before it ~~made a turn~~ed to the southeast. Several witnesses reported hearing ~~the airplane engine sound which they reported as sounding good. Other witnesses~~"good" engine sounds. Other witnesses, who saw the airplane just before the impact, reported that it was ~~a~~ in a steep nose-down, left descending spiral. ~~W~~Two witnesses reported seeing the airplane ~~complete 1 ½ to 3 spirals before it descended below the trees. They then saw a plume of black smoke spiral one and a half to three times before it descended below the trees, followed by a plume of black smoke.~~

The Minneapolis St. Paul Metropolitan Airport Commission provided flight track data for the accident flight. The data indicated that the airplane departed from runway 28R and made a wide, climbing right turn to the northeast. During the climb, the airplane leveled off for about 10 seconds about 925 ft above ground level (agl). The climb then continued to 1,050 agl, at which point the airplane entered a descent and was then lost on radar.

PERSONNEL INFORMATION

The pilot held a private pilot certificate with a single-engine land rating, which was issued on October 12, 1988. The pilot's logbook contained entries from May 31, 1987, through August 27, 2016. ~~Between 1999 and 2005,~~ the pilot ~~had flown 10.2 hours~~recorded 10.2 hours of flight experience. There were no entries between 2005 and August 6, 2017. The pilot ~~flew~~recorded 4.8 hours of flight experience with a flight instructor in a Jabiru airplane between August 6, ~~2017,~~ and August 27, 2018, ~~during which time he obtained a flight~~

review on August 27, 2017, at which time, the pilot completed a flight review. According to the logbook, the pilot's total flight time experience was 312.1 hours. The pilot did not log any flight time in a Horizon 2 airplane, and the logbook did not contain a tailwheel endorsement. The pilot's most recent Federal Aviation Administration (FAA) medical certificate was issued on March 7, 2012.

The flight instructor who flew with the pilot, who had flown with the pilot in August (about 2 months before the accident), stated that they had discussed having an experienced pilot make the whether to have an experienced pilot conduct the first flight in the pilot's airplane after it was completed built. The flight instructor stated that the pilot replied that he had built the airplane, so he was going to make conduct the first flight.

AIRCRAFT PLANE INFORMATION

The Horizon 2 is a two-place, high-wing, tailwheel-equipped airplane with a tandem seating arrangement. The airplane structure was made of primarily wood with and had a fabric skin. The airplane was powered by a 100-horsepower, 4-stroke, liquid-cooled, Subaru EA81 engine. The engine logbook indicated sd that the engine was rebuilt in March 2015. The only other entry in the logbook was dated May 5, 2017, when the ich indicated that an oil cooler was had been installed. There were no engine times listed in the logbook.

The pilot maintained a build log for the airplane, which indicated he that he had purchased the plans and started building the airplane in 1991. The last entry in the log was dated June 16, 2015, which documented adjustments to the carburetor and throttle control cable.

On June 7, 2017, the pilot ground looped the airplane while performing high speed taxi tests. The ground loop resulted in landing gear damage. The accident occurred on the airplane's first flight.

AIRPORTS

The Minneapolis St. Paul Metropolitan Airport Commission (MAC) maintains a flight tracker program. The MAC office provided information and data for the accident flight. The data indicated that the airplane departed on runway 28R and made a wide climbing right turn to the northeast. During the climb, the airplane leveled off for about 10 seconds at an altitude of about 925 ft above ground level (agl). The climb then continued to an altitude of about 1,050 agl when it entered a descent and was lost on radar, which resulted in landing gear damage, while performing high-speed taxi tests.

AIRPORT

WRECKAGE AND IMPACT INFORMATION

The initial impact point was in the parking lot on the south side of the Resurrection Life Church located on Glory Lane, Eden Prairie, Minnesota and left scrape marks on the asphalt. The wreckage path from the first initial impact point to the main wreckage was on a magnetic heading of 30°. The initial ground impact consisted of scrape marks on the asphalt. About 20 ft further along the path was a gouge mark in the pavement which. A gouge mark was found in the asphalt about 20 ft farther along the path, and it contained

numerous pieces of splintered wood. The right wing was ~~locate~~found wrapped around a ~~light~~ pole about 210 ft from the initial impact. Further along the wreckage path were the ~~burned~~ fuel tanks, the engine, ~~what remained of t~~portions of t he cockpit/fuselage, the empennage, and ~~lastly~~ the propeller hub. The wreckage from the right wing to the end of the wreckage path was mostly destroyed by fire. Pieces of the splintered composite propeller blade, plexiglass, and wood were scattered along the entire wreckage path.

The fuselage and cockpit area were destroyed by ~~the~~ fire. The main landing gear assembly ~~was~~ separated from the fuselage. The bottom of the right wing was destroyed from the wing root to the aileron attach~~ment~~ point. The fabric on the top of the wing was scorched and melted in the wing root area. The flap was separated into two pieces. The inboard section of the flap was separated from the wing, and the outboard section remained attached. The aileron remained intact and attached to the wing. The control cables were pulled out from the wing and remained attached to the cockpit control column.

The left wing was destroyed by ~~the~~ fire. The left aileron was separated from the wing. The aileron control cable was ~~in the area of~~found near the burned wing, and it remained attached to the cockpit control column.

The fuel tanks were ~~detach~~separated from the wings and burned. The fuel tank caps were not in place; however, melted material was visible around the base of the filler neck. Material was visible inside the left fuel tank ~~which, and it~~ appeared to ~~have been~~be portions of ~~a~~the melted fuel cap. The position of the cockpit fuel ~~selector~~ could not be determined due to ~~the~~ impact and fire damage.

The empennage ~~was separated from the remainder of the wreckage. The frame, although heat damaged, frame was heat damaged but~~ remained intact. A portion of scorched fabric remained attached to the right elevator. The rudder cables remained attached to the bottom of the rudder and tailwheel. ~~The cables were traced to the cockpit area where they remained attached to the forward and aft seat right side wooden rudder pedals. The left side rudder pedals for both the forward and aft seats were not locate~~Cable continuity from the cockpit area to the forward and aft seat right rudder pedals was established. ~~The forward and aft seat left rudder pedals were not found.~~ However, the left ~~side~~ cable was intact, and it ~~did~~ contain~~ed~~ the turnbuckles and rudder pedal attach~~ing~~ment hardware.

The elevator control push-pull tube was connected at the elevator control surface and at the cockpit control. The center section of the push-pull tube was melted, and only portions of the tube were ~~locate~~found. The elevator trim cable remained attached at the elevator control surface.

The engine was ~~separated from the wreckage and burned. The right side of the engine sustained impact damage. The right side valve cover contained impact damage and was separated from the engine leaving the valve springs visible~~burned, and its right side was ~~impact-damaged. The right valve cover was impact-damaged and was separated from the engine.~~ Two of the valve lifters on the right side were separated from the ~~engine, one of which was located near the~~ engine. The ~~left~~ valve cover ~~on the left side was removed~~was in ~~place~~, and the valves and springs were intact. The oil pan was removed from the engine, and the inside of the engine was intact. ~~Oil was present within the engine and contained oil.~~ The propeller was separated from the engine. The ring gear was smashed rearward against

the engine case.

~~The propeller assembly was located at the end of wreckage path. One of the~~One of the propeller's composite blades remained mostly intact and attached to the hub. The butt end of the other two blades remained attached to the hub. ~~Pieces and splinters of the separated blades were located throughout the wreckage path.~~ The propeller spinner was separated from the hub. The spinner was flattened ~~with~~and exhibited a small amount of torsional bending ~~noted.~~

MEDICAL AND PATHOLOGICAL INFORMATION

~~An autopsy of the pilot was performed at t.~~

MEDICAL AND PATHOLOGICAL INFORMATION

The Hennepin County Medical Examiner's Office, Minneapolis, Minnesota, ~~on October 5,~~2017~~conducted an autopsy of the pilot.~~ The pilot's death was attributed to "multiple blunt force injuries due to an airplane crash.

~~Toxicology testing performed by the FAA"~~

The FAA's Bioaeronautical Research Sciences Laboratory, Oklahoma City, Oklahoma, performed toxicology testing on specimens from the pilot. The testing was negative for carbon monoxide, cyanide, ethanol, and drugs ~~in the testing profile.~~