

HISTORY OF FLIGHT

On July 26, 2015, at 1513 central daylight time, a Beechcraft V35B airplane, N252G, struck trees and impacted terrain during a forced landing near Colbert, Oklahoma. The private pilot was fatally injured, and the passenger was seriously injured and died 52 days later. The airplane was substantially damaged. The airplane was registered to Avprop, LLC and operated by the pilot under the provisions of 14 Code of Federal Regulations (CFR) Part 91 as a personal flight. Visual meteorological conditions prevailed at the time of the accident and an instrument flight rules flight plan had been filed. The flight originated from Springfield-Branson National Airport (SGF), Springfield, Missouri, at 1317.

The pilot and his wife were returning to Fort Worth, Texas, from Jackson, Michigan. Earlier in the day, the couple departed from Jackson County-Reynolds Field (JXN), Jackson, Michigan, and flew to SGF where they landed and refueled, taking on 45 gallons of aviation gasoline. A fuel receipt showed a time of 1252:47. GPS data showed that the airplane took off to the west-northwest and then turned southwest toward Fort Worth. The airplane climbed to and maintained 11,000 ft. mean seal level (msl).

About 1501, the pilot contacted the Fort Worth Air Traffic Control Center (ZFW) and declared an emergency reporting that the airplane had lost engine power and that he needed to "get to an airport right away." As the airplane was descending through 8,360 ft. msl, the ZFW air traffic controller told the pilot that the North Texas Regional Airport (GYI), Sherman/Denison, Texas, was at his 12 o'clock and about 15 miles. The pilot responded that he had partial power and would see if he could make it to GYI. The pilot asked the controller for a vector to GYI; the controller instructed the pilot to turn to a heading of 245°. About 2 minutes later, as the airplane descended through 6,023 ft. msl, the pilot asked the ZFW controller if there was something closer. The controller told him that the Durant Regional Airport (DUA), Durant, Oklahoma, was at the pilot's 3 to 4 o'clock and 10 miles. The pilot requested a turn toward DUA; the controller told the pilot to turn right direct DUA. Radar data showed that the airplane made a right 90° turn to about a 360° heading.

At 1505, as the airplane descended through 4,260 ft. msl, the controller advised the pilot that there was a private airfield about a mile behind him. The pilot replied, "wish I knew where that was ..." The controller then provided the pilot runway information for DUA, and said that the minimum instrument flight rules altitude for the area was 2,700 ft. msl. The pilot responded, "where's that private strip ...?" The controller responded, "it's not close enough for you to get to ... there is GYI at your 2 to 3 o'clock 10 miles, Durant is at your 6 to 7 o'clock and 10 miles." There was no response. The ZFW controller made several attempts to contact the pilot, but there were no further transmissions from the pilot.

Radar data showed that about 1506, the airplane made a right 180° turn to the south. The airplane descended through 3,370 ft. msl. About 2 minutes later, the airplane made a left 270° turn and rolled out on a westerly heading. At the last radar contact, the airplane was about 5 miles southeast of Colbert, at 700 ft. msl. The terrain elevation in the area was about 660 ft. msl.

PERSONNEL INFORMATION

The pilot held a private pilot certificate with single-engine land airplane and instrument ratings. On April 14, 2015, he received a special issuance third-class medical certificate limited by a requirement for corrective lenses and marked, "not valid for any class after 04/30/2016."

The pilot's logbook showed that he had flown 1,491.0 total hours, 21.9 hours of which were in the 30 days before the accident. The logbook also showed that the pilot successfully completed a flight review and instrument proficiency check in the accident airplane make and model on May 14, 2015.

AIRCRAFT INFORMATION

The four-place, single-engine, V-tail airplane, serial number D-10266, was registered to a corporation and used by the pilot for both business and pleasure. It was equipped with two ~~4032~~-gallon fuel tanks and powered by a 285 horsepower Continental Motors IO-520-BB engine, serial number 836904-R.

A review of the airframe and engine records revealed that the airplane had undergone a 100-hour inspection on January 14, 2015, at an airframe time of 3,841.4 hours.

METEOROLOGICAL INFORMATION

At 1155, the automated weather observation station at DUA, located 9 nautical miles north-northeast of the accident site recorded wind 190° at 7 knots, visibility 10 miles, clear skies, temperature 36° C, dew point 19° C, and altimeter setting 29.93 inches of mercury.

WRECKAGE AND IMPACT INFORMATION

The accident site was located in a wooded area along the east side of a road about 5 miles southeast of Colbert. The site was surrounded by fields suitable for a forced landing. The airplane came to rest upright and was oriented on a south-south westerly heading. The airplane initially impacted some pine trees about 100 ft. east-northeast of the wreckage. Several tree branches in the immediate vicinity of the airplane were broken and showed marks consistent with impact marks on the airplane's wings and fuselage. The debris path was on a bearing of about 200° from the initial tree impact. About 40 ft. east of the airplane was an impact crater that measured about 25 ft. wide and 20 ft. long. Airplane debris and dirt fanned out from the crater toward the airplane wreckage.

Within the debris field were pieces from the engine cowling, forward fuselage, windscreen, and fuel system. Also within the debris field were luggage and broken branches.

The main wreckage consisted of the cabin, fuselage, engine, propeller, left and right wings, and empennage. (See Figure 1 for a photograph showing the accident site and main wreckage)

[Photograph of the accident site and main wreckage]

Figure 1. A photograph showing the accident site and main wreckage.

The cowling, engine, and engine mounts were broken downward and twisted right 15°. The nose gear was in the retracted position. The nose gear wheel well and nose gear doors were crushed upward. The front cabin floor and front seats were broken downward and canted right about 10°. The instrument panel, control yoke and glareshield were broken forward and down. The front windscreen was broken out and fragmented. The rear cabin, baggage compartment and aft fuselage showed upward crushing. The empennage showed minor damage.

The propeller remained attached to the engine crankshaft flange. The spinner was dented inward. Two of the three propeller blades were intact and undamaged. The third propeller blade was bent aft about 45° and located under the lower engine cowling, and showed no leading edge gouges or chordwise scratches.

The airplane's left wing was intact. The forward leading edge showed dents and fractures along its entire span. The left main fuel tank remained intact and 32 gallons of fuel were recovered from it. The left main landing gear was in the retracted position and the gear doors were crushed upward. The left flap and aileron were intact.

The airplane's right wing was broken aft longitudinally at mid-span. The right fuel tank was broken open. The smell of fuel was prevalent. The right main landing gear was in the retracted position and the gear doors were crushed upward. The right flap was in the retracted position and showed minor damage. The right outboard wing section and right aileron were located immediately right of the inboard section. The wing section was broken upward and crushed aft. The leading edge showed impact marks consistent with striking trees. Tree debris was found in several of the dents and skin tears. The right aileron was broken out and bent in several locations along its span. Flight control continuity was confirmed from the cockpit to the left and right ailerons and the V-tail stabilizers.

An examination of the engine revealed no anomalies. An examination of the fuel system showed the fuel selector valve handle positioned between the left and right tank positions. Fuel selector continuity was established for each detent by blowing air through the valve. No air flowed through the valve when the fuel selector was in the intermediate position between the left and right tanks. No other anomalies were found with the airplane.

A J. P. Instruments EDM-700 engine data monitor, Garmin Aera 560 GPS, and a Horizon Instruments P1000 tachometer were retained and sent to the NTSB Vehicle Recorders Laboratory for examination.

TESTS AND RESEARCH

Electronic Devices

The Horizon Instruments P1000 tachometer was capable of displaying engine rpm and storing tachometer time to non-volatile memory. The unit powered on normally and a tachometer time of 3,886 hours was observed.

Data extracted from the Garmin Aera 560 GPS produced 37 logs from January 22, 2014, through July 28, 2015. Two logs associated with the day of the accident were identified by recorded date and time; the first starting at 0809:50 CDT and ending at 1226:02 CDT, and the second starting at 1318:52 and ending at 1507:47 CDT.

Engine performance data was extracted from the J. P. Instruments EDM-700 engine data monitor memory chips. Engine parameters monitored and recorded by the unit included:

_exhaust gas temperature (EGT),

_cylinder head temperature (CHT),

_fuel flow,

_fuel used, and

_voltage.

The EDM recorded about 11,375 data points over 11 flight logs. Two logs associated with the day of the accident were identified by recorded date and time; the first starting at 0816:02 and ending at 1234:34, and the second starting at 1315:49 and ending at 1513:30. The data points were recorded every 6 seconds.

A noticeable drop in EGT and CHT for all 6 cylinders occurred 9 minutes before the last recorded data point. The EGTs dropped from about 1,500°F to 400°F, and then to about 100°F. The CHTs dropped from about 380°F to about 115°F.

Air Traffic Control

The ZFW controller was a developmental controller and was on duty with an instructor. After the pilot declared an emergency and requested the closest airport, the controller gave the pilot runway information for GYI and gave the location as 15 miles straight ahead. The controller issued the pilot a vector to the airport, but did not obtain any further information from the pilot about the emergency. The Federal Aviation Administration's (FAA) Joint Order 7110.65, Air Traffic Control, paragraph 10-1-2 states in part that a controller should obtain enough information to handle an emergency intelligently and should base his or her decision as to what type assistance is needed on information and requests received from the pilot because the pilot is authorized by 14 CFR Part 91 to determine a course of action.

When the controller issued the vector to GYI, the airport was about 15.8 nautical miles (nm) straight ahead; DUA was located 7.5 nm to the north. The instructor did not offer the controller a correction or suggestion that DUA was a more appropriate choice for diversion. According to radar data, the airplane traveled a total distance of 7.9 nm from the point at which the pilot reported the engine failure to the accident site.

A short time after the controller issued the initial vector to GYI, the pilot asked for a closer airport. The controller provided the location of DUA as 3 to 4 o'clock and 10 miles. By that time, however, DUA was at 4 o'clock and about 8.2 nm. At 1505:31, the controller advised the pilot of a private airstrip 1 nm behind the airplane. The pilot transmitted "wish I knew where that was for ..." The airstrip was actually about 10 nm away and the instructor did not correct the developmental controller. Interviews with other controllers assisting with the emergency revealed that they had used a visual flight rules (VFR) sectional chart when they suggested the private airstrip was 1 nm behind the airplane. The private airstrip was not depicted on the radar display and there were no identifying features on the display to allow a precise assessment of the direction and distance to the private airstrip.

At 1506:12, when the airplane was 7 nm from DUA, the pilot initiated a 180° right turn to the south. The pilot again asked for the location of the private airstrip. About a minute later, the controller advised the pilot that the private airstrip was too far away and repeated the locations of GYI and DUA. Radar contact was lost shortly after.

FAA traffic management software continually monitors predicted and actual traffic levels in various sectors as a means of tracking controller workload and sector staffing needs. Monitor Alert Parameters (MAP) are established as a workload benchmark to assist supervisors and controllers-in-charge (CIC) in recognizing high-workload situations. Traffic counts above 18 would be a reason for workload concern, even with training in progress. At 1500, the predicted traffic load for the developmental controller was 24 aircraft and expected to remain above the MAP until 1530, when it was expected to drop back down to 15 aircraft. The CIC had developed a plan to split the combined sector into individual sectors based on the increased MAP levels, but delayed its implementation. The emergency had already begun, adding workload to the already busy sector.

MEDICAL AND PATHOLOGICAL INFORMATION

The Board of Medicolegal Investigations, Office of the Chief Medical Examiner, Oklahoma City, Oklahoma, conducted an autopsy of the pilot. The pilot's death was attributed to "multiple blunt force injuries." In addition, significant heart disease was identified that included atherosclerosis of the coronary arteries. The posterior descending coronary artery was found to have about 90% stenosis, and the left main, left anterior descending, and right coronary arteries had about 25% stenosis.

The FAA Bioaeronautical Sciences Research laboratory conducted toxicology testing on the

pilot's specimens. The tests detected rosuvastatin in the pilot's urine but not in his blood. Rosuvastatin is a prescription medication in the class of medications called statin antilipemic agents. It is used to reduce blood cholesterol and triglyceride levels, and it is not impairing.

ADDITIONAL INFORMATION

The Raytheon Beech Hawker Pilot's Operating Handbook (POH) for the model V35B airplane provides emergency procedures in the event of an engine failure after takeoff or while in flight. The first item in the emergency procedure states, "Fuel Selector Valve – SELECT OTHER TANK (Check to feel detent)."

Additionally, the POH provides an emergency checklist for maximum glide configuration that states that with the landing gear and flaps retracted, cowl flaps closed, propeller at low rpm, and maintaining an airspeed of 105 kts, the airplane's glide distance is approximately 1.7 nm per 1,000 ft. of altitude above the terrain.

An after-market laminated checklist found in the airplane wreckage, under ENGINE FAILURE INFLIGHT, showed the fourth item as "FUEL SELECTOR ... FULLEST TANK/OTHER."