

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



WPR24FA024

INVESTIGATIVE SUPPLEMENTAL MATERIALS

ACCIDENT

Location: Orangeville, UT
Date: 10.27.2023
Time: 1345 mountain daylight time
Airplane: Cessna T206H

INVESTIGATIVE SUPPLEMENTAL MATERIALS

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HISTORY OF FLIGHT

On October 27, 2023 about 1345 mountain daylight time, a Cessna T206H, N915DV, sustained substantial damage when it was involved in an accident near Orangeville, Utah. The pilot sustained fatal injuries. The airplane was operated as a Title 14 Code of Federal Regulations (CFR) Part 91 personal flight.

A family member stated that the pilot had traveled earlier in the morning from his base airport in Craig, Colorado to Vernal, Utah. After spending about two hours in Vernal, the pilot departed with a planned destination of Cedar City, Utah.

Investigators reviewed Federal Aviation Administration (FAA) provided Automatic Dependent Surveillance-Broadcast (ADS-B) data for the accident flight. The data disclosed that at about 1300 the airplane departed Vernal to the southwest and then proceeded west to Bottle Hollow Reservoir. Thereafter, at about 1310, the airplane headed on a southwest course and climbed to about 8,300 ft mean sea level (msl). At 1318, the airplane climbed to about 8,800 ft and remained at that altitude and on a constant southerly heading until the data ended at 1345. The last ADS-B data point was located adjacent to where the wreckage was located, near the peak of a hill (see Figure 1).

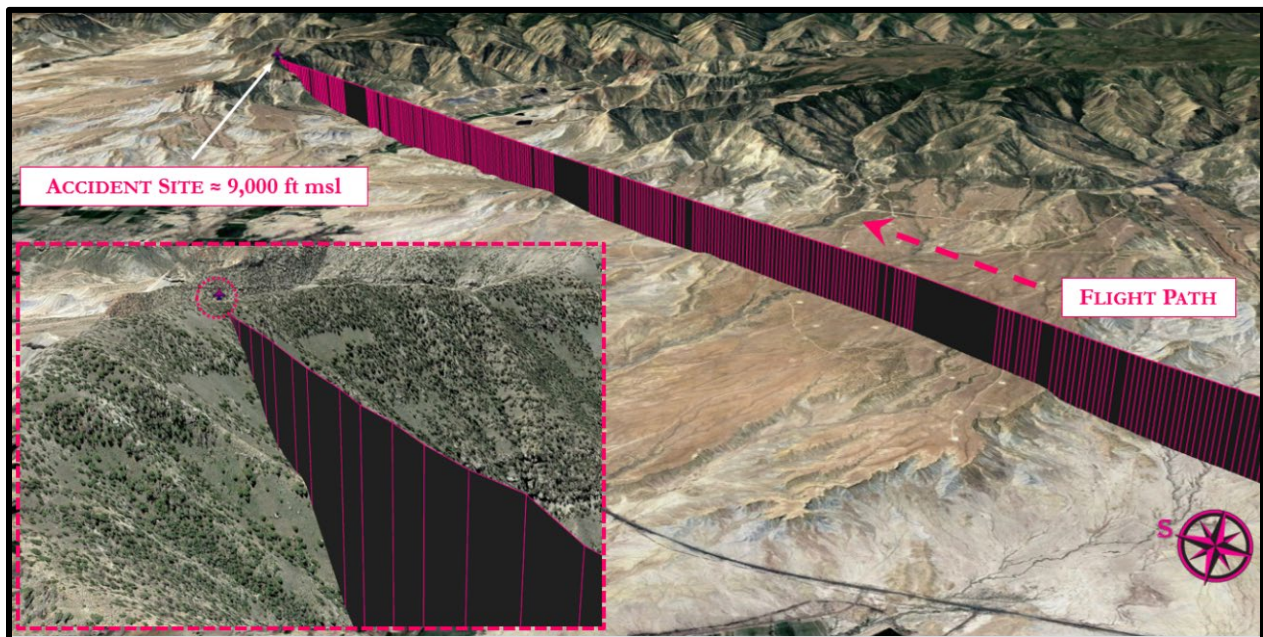


Figure 1: Airplane's Flight Path

Investigators were unable to access the wreckage on site due to the steep terrain.

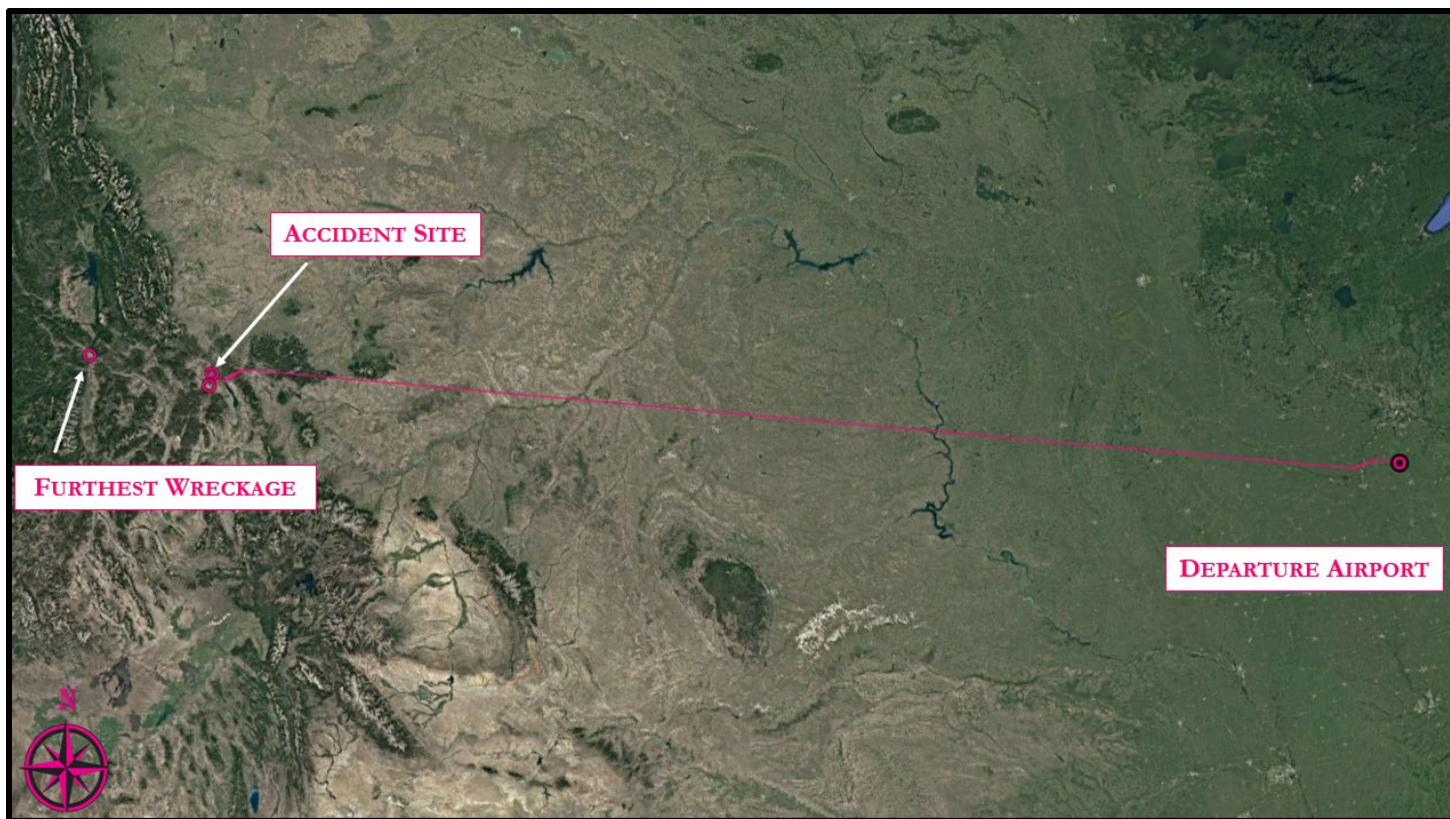


Figure 2: Wreckage from departure

AIRFRAME

The aircraft was configured with factory-standard six-place seating and was equipped with the Garmin G1000 Nav III avionics package. Current airframe and engine hours could not be determined due to damage of the avionics. The engine data plate and propeller hub were not observed; therefore, the model information is assumed to conform to the Type Certificate Data Sheet. According to the latest maintenance records, the engine serial number was L-11938-61A, and the engine time as of May 8, 2023, was 807.7 hours. According to delivery records, the original propeller serial number was 042709.

Site photographs showed that the left wing had separated from the fuselage and was located separately in the wreckage. The wing was separated into inboard and outboard sections at the junction of the flap and aileron. The fuselage and empennage sustained extensive thermal damage.



Figure 3: Left wing

The cockpit and passenger cabin were consumed by fire, and the upper tailcone exhibited significant thermal effects. The remaining cabin floor structure showed pronounced fore-to-aft crush damage and wrinkling.

The right wing exhibited substantial leading edge crush damage and thermal damage near the fuel tank.



Figure 4 :Right wing

Flight control continuity could not be confirmed due to impact damage, thermal effects, and recovery cuts.

The balance cable remained seated at both aileron bellcranks. A recovery cut was observed on the right-hand outboard section, and a tensile break was found on the left-hand outboard section. The section of cable between

the break and the cut was not recovered. The right-hand forward control cable was found continuous from the right aileron bellcrank to the right yoke quadrant. The left-hand forward cable was not seated in the left aileron bellcrank, but segments of the cable were found routed through the left forward doorpost with recovery cuts at both ends. Portions of the left and right yoke quadrant interconnect cables were identified with tensile breaks.

The forward portion of the left-hand elevator cable remained attached to the elevator control column torque tube but exhibited a tensile break beneath the cockpit floorboards. The forward portion of the right-hand elevator cable attach point had separated from the torque tube and was not observed. Both aft cable portions remained attached to the elevator bellcrank and exhibited tensile breaks beneath the cabin floor. Portions of the trim wheel chain were found but were not attached to the forward trim cables, which were not observed. The aft trim cables remained continuous from the trim actuator to recovery cuts beneath the cabin floor. The actuator pushrod measured 1.7 inches. Tab position could not be accurately determined due to deformation and bending of the pushrod. The trim tab was observed in the nose-up (tab down) position during the examination.

The forward portion of the right-hand rudder cable was attached to the rudder pedal torque tube and exhibited a tensile break beneath the cockpit floor. The forward portion of the left-hand rudder cable was not attached and was not observed. The aft portions of both rudder cables remained attached to the rudder control horn. The left-hand cable exhibited a tensile break, and the right-hand cable exhibited a recovery cut beneath the cabin floor. Rudder trim position could not be determined; the chain was found detached from the trim actuator. Both flap interconnect cables were seated in the left and right flap bellcranks. The forward cable had a tensile break near the right-hand bellcrank. The majority of the aft cable was not observed, but each end showed a tensile break near the bellcrank seating location. Both pushrods connecting the inner and outer flap bellcranks were broken at their respective rod ends. The flap actuator measured 0.1 inch, indicating flaps were fully retracted (0°).

The aileron, pitch, and pitch trim autopilot servos were found with their respective cables seated in the capstans. All three cable runs were continuous to their respective attach points.

The left-hand fuel tank remained mostly intact but sustained multiple breaches, significant crush deformation, and thermal damage. The left-hand aft and right-hand forward fuel tank finger screens were found clean of debris. The right-hand aft and left-hand forward finger screens were not located. The fuel selector was confirmed in the BOTH position, based on the orientation of the flat demarcation on the selector handle stem and airflow verification through the selector ports. The selector handle was not recovered. Only the strainer screen was located; it was free of major debris. Both fuel tank caps were recovered with rubber gaskets that remained pliable.

Environmental system control settings could not be determined due to thermal damage. The cabin heat muffler shroud was removed and showed no indication of pre-impact leakage. The oxygen bottle regulator was found in the ON position. The outlet and gauge lines were severed, and the bottle was unsecured from its mounting position. The ELT was not reported to have activated on impact.

All six seats were located and identified but were heavily thermally damaged. One partial seatbelt was found but could not be positively associated with a specific seat location. The forward four seats were equipped with seatbelt-mounted airbags. The majority of the instrument panel and flight displays were consumed by fire.

ENGINE

The Lycoming TIO-520-AJ1A serial number L-11938-61A, was intact. The propeller governor pad exhibited impact damage, and the crankcase assembly showed signs of impact damage and exposure to thermal forces. The crankcase displayed multiple fractures across the entire assembly. All six cylinders remained attached in

their respective positions along the crankcase assembly, with varying levels of impact damage noted. The left-hand cylinders were severely fragmented due to impact forces.

The engine could not be rotated by hand. Due to the inability to rotate the engine and the extent of impact damage, finger compression testing was not performed. Mechanical continuity was visually verified by drilling holes along the upper portion of the crankcase assembly and inspecting the internal components using a borescope. The camshaft assembly was intact, with no worn lobes, cracking, or fractures noted. The crankshaft assembly was also intact and exhibited no signs of fractures or cracking. All six connecting rods were securely fastened to the crankshaft assembly, with no evidence of extruded bearing material or oil starvation observed on the crankshaft throws.

The accessory housing was removed to facilitate examination of the crankshaft gear and bolt, as well as the condition of the idler gears and oil pump. The crankshaft gear was securely fastened to the crankshaft using the appropriate hardware and locking tab. Removal of the crankshaft gear revealed that the crankshaft gear dowel was intact. The idler gears were undamaged and securely attached to the crankcase assembly. The oil pump body was secured to the accessory housing. The engine-driven fuel pump, vacuum pump, and hydraulic pump drives were all found to be secure and undamaged within the accessory housing.

The left magneto was separated from the accessory housing and exhibited damage consistent with the absorption of impact forces. It was also subjected to thermal forces. The right magneto remained securely attached to the accessory housing by its two mounting flanges and associated hardware. Due to damage from thermal forces, the right magneto could not be functionally tested or timed.

The top spark plugs in cylinders 1, 2, and 6 were sheared in half due to impact forces. The bottom spark plugs from cylinders 2, 4, and 6 were not available for examination. The top spark plugs from cylinders 3, 4, and 5 and the bottom spark plugs from cylinders 1, 3, and 5 were found secured in their respective cylinder positions. The electrodes were undamaged. Varying degrees of discoloration and corrosion were noted on the plugs, consistent with exposure to thermal forces. All ignition leads were destroyed as a result of impact and thermal forces.

Exhaust gases from cylinders 2, 4, and 6 route through the heat shroud assembly located on the forward side of the engine sump assembly. These gases then travel aft, merging with gases from cylinders 1, 3, and 5, and are routed directly overboard or through the hot side of the turbocharger assembly, depending on the position of the bypass valve. Gases exiting the turbocharger are routed overboard through the airframe tailpipe. The exhaust system is mounted to each cylinder using plain washers and locknuts and joined using slip joints. Several V-band clamps connect the exhaust transition, wastegate, and tailpipe assemblies.

The turbocharger assembly was separated from the engine due to impact forces. The compressor housing had detached from the turbocharger. Damage to the compressor wheel was consistent with rotational impact. The slope controller was not available for examination. The pressure relief valve had been damaged by impact forces and was separated from the intake system. The exhaust bypass valve remained secured to the exhaust system via two V-band clamps but could not move freely due to exposure to impact and thermal forces.

FUEL SYSTEM

The engine-driven fuel pump was destroyed by impact and thermal forces. The fuel servo inlet screen was free of debris and contamination. The fuel injection servo diaphragms were destroyed due to thermal exposure. The throttle control arm was securely attached to the servo, and the throttle control cable remained connected. The fuel mixture control arm was securely attached to the servo, and the mixture control cable remained connected. The fuel injection servo was attached to the induction plenum, and the servo and plenum assembly had separated from the engine due to impact forces. The flow divider diaphragm was destroyed due to thermal exposure, as observed during disassembly. The fuel inlet line and all six injection nozzle lines were attached to

the flow divider, which was fully assembled and secured to the engine. Fuel injection nozzle assemblies from cylinders Nos. 1, 2, 3, 5, and 6 were in place and free of obstructions. The No. 4 injection nozzle was not available for examination.

PROPELLER BLADES

The propeller hub was fractured with a fragment of the hub remaining securely attached to the crankshaft flange. All three metal propeller blades had separated from the hub. Each blade exhibited varying degrees of leading-edge damage, torsional twisting, chordwise striations, and trailing-edge S-bending. The condition of the blades was consistent with damage resulting from the absorption of rotational forces.



Figure 5: Propeller blades

PILOT INFORMATION

Pilot MID 200010679556 (PI 1025408), Pilot Certificate 2988768 (COMMERCIAL PILOT ASEL, INSTRUMENT; MECHANIC), was a 47-year-old male. This pilot reported civil flight experience that included 830 total and 300 hours in last six months as of exam dated 8/22/2023. This pilot was 73 inches tall and weighed 193 lbs. at the time of the last exam. This pilot was issued a Second Class Medical Certificate without limitation.

The pilot did not create a ForeFlight flight plan for the accident flight.

WEATHER INFORMATION

Date/Time (UTC) Updated Route String

10/27/2023 21:01:21 KTWF KCAG N915DV 11500FT

10/27/2023 1:14:00 KCAG KVEL 38.933/-111.433 38.716/-112.023 38.195/-112.327 KCDC N915DV 10500FT
20231027T13:45:00Z

10/27/2023 1:13:54 KCAG KVEL 38.933/-111.433 38.716/-112.023 38.195/-112.327 KCDC N915DV 12500FT
20231027T13:45:00Z

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