

NATIONAL TRANSPORTATIONS SAFETY BOARD
Office of Aviation Safety
Washington, DC 20594

SUMMARY OF AIRCRAFT EXAMINATION

-- CEN22LA137 --

A. ACCIDENT

Location: Englewood, Colorado
Date: March 8, 2022
Time: 1417 mountain standard time
Aircraft: Cessna P210N, N210GE

B. PARTICIPANTS

Timothy Sorensen
Senior Aviation Accident Investigator
National Transportation Safety Board
Denver, Colorado

Ryan Teilhaber
Air Safety Investigator
National Transportation Safety Board
Denver, Colorado

Roger Miller
Aviation Safety Inspector
Federal Aviation Administration
Denver, Colorado

Nelson Wolfmeier
Aviation Safety Inspector
Federal Aviation Administration
Denver, Colorado

Andrew Hall
Chief Air Safety Investigator
Textron Aviation
Wichita, Kansas

C. ACCIDENT SUMMARY

On March 8, 2022, at 1417 mountain standard time, a Cessna P210N airplane, N210GE, was destroyed when it was involved in an accident near Englewood, Colorado. The pilot and flight instructor sustained minor injuries. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

Summary of Aircraft Examination

D. DETAILS OF AIRCRAFT EXAMINATION

Post-accident airframe and engine examinations were conducted at Beegles Aviation, Greeley, Colorado, on May 19, 2022. The Federal Aviation Administration and Textron Aviation provided technical support as parties to the investigation. The NTSB did not respond to the accident site.

E. DESCRIPTION OF ACCIDENT SITE

The accident site was located about one-half mile south of the Centennial Airport runway 35L arrival threshold in the median area between the east and westbound traffic lanes of the E470 toll road. The airplane came to rest on a steel-cable safety barrier adjacent to the westbound traffic lanes. A post-impact fire ensued.

The engine/engine mount was partially separated at the firewall and remained in position immediately adjacent to the fuselage. Both wings remained attached to the fuselage.¹ The outboard portion of both wings were deformed upward consistent with impact. The empennage remained attached to the aft fuselage and appeared intact. The post-impact fire damaged the cockpit/cabin area, the aft portion of the engine, and the inboard right wing. Portions of the inboard left wing exhibited sooting. The landing gear and wing flaps were extended.

F. SUMMARY OF AIRCRAFT EXAMINATION²

Airframe – Cessna P210N (s/n 21000655)

The engine, engine mount, and cowling were separated from the firewall. The forward fuselage, including the firewall, was deformed consistent with impact forces. The fuselage structure was complete; however, the entire forward and portions of the center fuselage, including the cockpit and cabin areas, was damaged by the post-impact fire.

The cockpit instrumentation and avionics were consumed. The control wheels and control columns were damaged. Aileron control continuity was confirmed from the control column sprockets to the wing roots. Elevator control continuity was confirmed from the aileron/elevator control column elevator torque tube to the aft fuselage elevator bellcrank assembly. The vertical stabilizer and rudder appeared intact. The rudder control cables were observed attached at the rudder cockpit controls and were continuous to the attachment at the rudder. The right, outboard portion of the horizontal stabilizer exhibited a crease. The remainder including the entire left side of the horizontal stabilizer assembly and both elevators appeared intact and undamaged.

The fuel selector was discolored consistent with the post-impact fire. The assembly was securely attached to the airframe, and the selector housing appeared intact. The fuel lines appeared intact in the area adjacent to the selector and were securely installed at the selector housing. The selector was positioned to the left fuel tank at the time of the exam.

The airplane was equipped with an STC auxiliary fuel tank installation located in the aft baggage area. The filler port was located on the right side of the aft fuselage. The cap

¹ The wings and empennage were disassembled from the fuselage prior to the examination to facilitate recovery and storage of the airplane.

² Directions related to accident site placement and component damage/deformation are with respect to an intact airframe unless otherwise noted.

Summary of Aircraft Examination

F. SUMMARY OF AIRCRAFT EXAMINATIONS *(continued)*

was securely installed. The right side of the fuselage in the area of the auxiliary fuel tank was discolored due to the post-impact fire. The tank appeared intact. Approximately 30 gallons of fluid were drained from the fuel tank. The fluid was free of debris or sediment and exhibited a blue tint and odor consistent with 100 low lead aviation fuel.

The nose landing gear was separated. The left and right main landing gear struts were partially extended. The left wheel assembly remained attached to the strut. The right strut was fractured, and the wheel assembly was separated.

The left wing was damaged consistent with impact forces and the post-impact fire. The outboard portion of the wing and aileron were bent upward. The inboard leading edge exhibited minor denting. The inboard portion of the wing and wing flap exhibited post-impact fire damage. Except as previously noted, the wing structure, including the inboard spar attachment lugs, appeared to be intact. The forward and aft fuel tank strainer screens were intact and unobstructed. The fuel filler port appeared intact, and the cap was securely installed. The aileron and flap remained attached. Aileron and wing flap control continuity were confirmed.³ The flap actuator mechanism appeared intact. The flap jack screw extension was approximately 0.15 inches which corresponded to a 30° flap deflection.⁴

The right wing was damaged consistent with impact forces and the post-impact fire. The outboard portion of the wing was deflected upward adjacent to the wingtip. The forward/inboard portion of the wing, including the fuel tank, was partially consumed by the post-impact fire. The wing spar attachment lugs appeared to be intact. The fuel filler port appeared intact, and the cap was securely installed. The forward and aft fuel tank strainer screens appeared intact and unobstructed. The fuel line and check valve associated with the auxiliary fuel tank installation appeared intact and undamaged from the wing root to the inboard area of the fuel tank. The aileron and flap remained attached. The aileron and adjacent wing skin exhibited a crease. Aileron and wing flap control continuity were confirmed.⁵

Engine – Continental TSIO-520-C (s/n 178042-71-C-R)

The engine assembly exhibited extensive thermal damage to the accessory section. The crankcase appeared undamaged, and the cylinders appeared intact and securely installed. The valve springs and rocker arms appeared intact. Internal engine and accessory section continuity was confirmed via crankshaft rotation. Compression and suction were observed at all cylinders.⁶ The intake and exhaust ducting were secured to the cylinders. The oil filter was securely installed with safety wire.

The engine-driven fuel pump remained attached to the engine and exhibited thermal damage. The input drive gear and adapter coupling were intact. The pump housing appeared intact with exception of the thermal damage. The pump did not rotate under

³ The aileron and flap cables were cut to facilitate recovery.

⁴ Airframe manufacturer documentation provided the flap deflection associated with the jack screw extension.

⁵ The aileron and flap cables were cut to facilitate recovery.

⁶ A differential compression test was not conducted.

Summary of Aircraft Examination

F. SUMMARY OF AIRCRAFT EXAMINATIONS *(continued)*

hand pressure. Disassembly revealed that the rotor and vanes were intact. The cavity exhibited minor corrosion.⁷

The flow divider appeared undamaged. The fuel injector lines were intact and secure at the flow divider and at each cylinder. The fuel injector nozzles were intact and unobstructed. Disassembly of the divider assembly did not reveal any anomalies.

The magnetos remained secured to the engine. The ignition harness was connected to both magnetos and to each spark plugs. The harness exhibited minor damage. The electrodes were intact and exhibited a black, sooty appearance. Both magnetos provided a spark at all leads when rotated.

The turbocharger assembly was sooted consistent with proximity to the post-impact fire. Otherwise, it appeared intact. The inlet duct remained securely attached to the engine, and the V-band clamp was intact. The turbocharger was free to rotate under hand pressure. Compressor vane imprints on the housing interior were consistent with a loss of engine power.⁸ The wastegate assembly appeared intact; however, it was partially separated consistent with impact forces.

The throttle body was damaged, and the inlet and outlet ducting were consumed by the post-impact fire. Portions of the throttle and mixture controls remained attached to the corresponding control arms. The throttle (“butterfly”) valve was intact with exception of thermal damage and free to rotate. The mixture control and linkage were similarly free to rotate.

The propeller governor was secured to the crankcase and appeared intact. The starter and alternator were securely installed to the engine accessory case. They were discolored and sooted consistent with the post-impact fire but appeared otherwise intact. They were not removed or examined further.

Propeller – Hartzell PHC-J3YF-1RF/F7693F+2 (s/n FP8352B)

The propeller assembly remained attached to the engine crankshaft. The hub was intact and each bladed securely retained. One blade was bent aft about 90° over the outboard one-half of the blade span. The second blade was deflected aft slightly over the outboard one-half blade span. The third blade appeared undamaged. The spinner was intact.

----- end of summary -----

⁷ The fuel pump corrosion appeared consistent with water/chemical exposure during the fire extinguishing efforts by first responders.

⁸ Scoring on the housing interior was due to rotation of the turbocharger disc before disassembly of the housing.