

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

Airplane Examination Summary

September 28, 2015

CEN15FA427

A. ACCIDENT

Location: Lexington, Texas

Date: September 27, 2015

Time: 1830 central daylight time

Aircraft: N3921D, Cessna 182A (s/n 34621)

B. PARTICIPANTS

Tim Sorensen (Investigator-in-Charge)
National Transportation Safety Board
West Chicago, IL

Adam Gerhardt
National Transportation Safety Board
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Peter "Ben" Brandon
Federal Aviation Administration
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Cessna Aircraft Company
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Mobile, AL

C. ACCIDENT SUMMARY

On September 27, 2015, about 1830 central daylight time, a Cessna 182A airplane, N3921D, was substantially damaged during an in-flight collision with trees and terrain near Lexington, Texas. The pilot sustained fatal injuries. The aircraft was registered to and operated by Austin Skydiving Center, Inc. under the provisions of 14 Code of Federal Regulations Part 91 as

part of a skydiving flight operation. Day visual meteorological conditions prevailed for the flight, which was not operated on a flight plan. The local flight originated from the Lexington Airfield (TE75), Lexington, Texas, about 1800.

D. AIRPLANE DESCRIPTION

The Cessna 182A airplane is a single-engine, high-wing, four-place design, with a fixed tricycle landing gear configuration. The accident airplane was configured with a single pilot seat and a modified right side cabin door to facilitate parachute jumping (skydiving) operations. The airplane utilized a standard flight control arrangement. The individual flight control surfaces were directly actuated by control cables to the cockpit pilot controls.

The airplane was powered by 230-horsepower Continental Motors O-470-L engine (serial number 67911-7-L). It was a six-cylinder, normally aspirated, reciprocating engine configuration. Thrust was provided by a two-blade McCauley 2A34C203-C, constant speed (variable pitch) propeller assembly. The engine was controlled through direct linkages between the cockpit engine controls, and the engine carburetor and propeller governor.

E. DETAILS OF THE EXAMINATION

The airframe and engine examinations were conducted at the accident site on September 28, 2015. NTSB investigators were assisted by representatives of the FAA, and the airframe and engine manufacturers. The airplane was released by the NTSB investigator-in-charge following the examinations.

F. ACCIDENT SITE DESCRIPTION

The airplane impacted trees and terrain about 0.25nm north-northwest of TE75. Approximate coordinates of the accident site were 30.4213 degrees north latitude and 090.9681 west longitude; the elevation of the site was about 437 feet.

The accident site was located in a wooded area, on the slope of an embankment surrounding a small pond. Limited tree breaks were consistent with a high angle of descent immediately prior to impact. One tree limb, approximately 6 inches in diameter, was severed consistent with a propeller strike. The end of severed tree limb was oriented about 45 degrees relative to the horizon, which was consistent with an approximate 45-degree nose down airplane attitude immediately prior to impact.

The airplane came to rest upright on the sloped side of the embankment and all wreckage was confined to the vicinity of the point of impact. All airplane structural components were located in the relative positions of an intact aircraft.¹

G. AIRFRAME EXAMINATION SUMMARY

The nose and forward fuselage was deformed and fragmented consistent with impact forces. The engine was dislocated aft into the firewall to a point approximately in-line with the leading edge of the wings. The cockpit area was compromised and fragmented. The instrument panel was deformed and fragmented. The flight instruments were dislocated from the panel and damaged. The pilot's control wheel had separated from the control column at the forward end of the control tube. The control column was deformed. The aileron control cables remained attached to the control chain, and the control chain remained with the column sprocket assemblies. The sprocket assemblies remained attached to the control column and appeared intact. The rudder and elevator control cables remained attached to the rudder pedals and the control column, respectively. The rudder pedal assembly was deformed consistent with impact forces. The flap handle² was in the flaps up (retracted) position when observed at the accident site. The fuel selector handle was separated from the valve. The fuel selector valve³ was positioned between the BOTH and LEFT settings when observed at accident site. The pilot's seat remained attached to the seat tracks. The seat tracks were partially separated from the fuselage and were deformed at the forward end of the assemblies. The pilot's seat belt remained buckled; however, the belt webbing had been cut. Shoulder harnesses did not appear to have been installed.

The fuselage exhibited buckling and deformation in the vicinity of the aft cabin and baggage area. The fuselage structure aft of that point appeared to be intact. The empennage remained attached to the aft fuselage and appeared intact. The rudder and elevators remained attached to the vertical and horizontal stabilizers, respectively. Control continuity was confirmed from the rudder and elevators to the cockpit area. At the time of the postaccident examination, both cabin doors were separated and located adjacent to the fuselage.

The left wing was separated and located adjacent to the fuselage. The forward spar exhibited a cut at the wing root consistent with a postaccident removal of the wing. The wing strut exhibited a cut about mid-length consistent with a postaccident removal of the wing. The outboard portion of the strut remained attached to the wing, and the inboard portion of the strut remained attached to the fuselage. Separation of the aft spar was consistent with an overload failure due to impact forces. The wing structure was deformed and the leading edge exhibited aft

¹ Directions related to component damage/deformation are provided with respect to an intact airframe unless otherwise noted.

² The flap handle is located on the cockpit floor immediately to the right of the pilot's seat, along the centerline of the airplane, on an intact airplane.

³ The fuel selector handle/valve is located near the cockpit floor, forward and to the right of the pilot's seat along the centerline of an intact airplane.

crushing along the entire span. The aileron and flap remained attached to the wing. Control continuity was confirmed from the aileron and the flap to the wing root. The fuel cap and filler neck appeared undamaged. The left wing fuel tank appeared to be intact. The lower side of the left wing exhibited blue staining adjacent to a quick drain. In addition, a fuel odor was present in the vicinity of the left wing.

The right wing remained attached to the fuselage. The wing structure was deformed, with aft crushing along the entire leading edge. The aileron and flap remained attached to the wing. The right aileron control tube was separated between the bellcrank and the control surface. The control tube was bent and the threads were deformed consistent with an overload failure. The aft portion of the control tube remained securely attached to the aileron. In addition, control continuity was confirmed from the aileron bellcrank to the wing root. The aileron cross-over cable was separated inboard of the wing root. The separation appeared consistent with an overload failure. Control continuity of the right wing flap was confirmed to the wing root. The fuel cap and filler neck appeared undamaged. The right wing fuel tank appeared to have been compromised.

The recording tachometer indicated 4,213.9 hours when observed at the accident site.⁴ The recording hour (Hobbs) meter was damaged when observed at the accident site.

H. ENGINE/PROPELLER EXAMINATION SUMMARY

The engine sustained damage consistent with impact forces. The engine mount and firewall were deformed. The engine cowling was separated from the airframe and located at the accident site. All six cylinders remained attached to the crankcase. The oil pan was deformed upward, and the carburetor was partially separated from the engine. Internal engine and accessory section continuity were confirmed through crankshaft rotation. Suction and compression were noted at all cylinders. A lighted borescope examination of each cylinder did not reveal any anomalies related to the individual cylinders, pistons, or intake/exhaust valves. The upper spark plugs exhibited normal combustion signatures. The left magneto was separated from the engine mounting pad. The right magneto remained secured to the engine. Both magnetos produced a spark across all leads when rotated. The carburetor housing was fractured consistent with impact forces. The throttle linkage remained connected to the carburetor; the mixture control linkage was separated. The butterfly valve appeared intact and was free to rotate. One float was exposed due to the housing damage. That float exhibited minor damage. The second float was contained within the intact portion of the carburetor housing. The needle valve appeared intact. The fuel screen was intact and unobstructed.

The propeller separated from the engine due to a fracture of the propeller hub. The hub was fractured adjacent to the mounting flange. Both propeller blades remained with the forward

⁴ An airframe logbook entry, dated August 25, 2015, indicated that the recording tachometer hour meter failed at 4,200 hours and that the recording hour (Hobbs) meter indicated 0 hours at that time.

portion of the hub, which was located with the engine at the accident site. The aft portion of the hub remained attached to the engine propeller flange. The appearance of the fracture surface was consistent with an overstress failure due to impact forces. The propeller blades exhibited minor bending and twisting over the span of the blade. One blade sustained minor scuffing damage in an area located about one-third span from the blade root and over the outboard one-third of the blade span. The propeller governor remained attached to the engine, and the propeller control linkage remained attached to the governor.