NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

April 17, 2015

AIRFRAME AND ENGINE EXAMINATION

WPR15FA147

This document contains 4 embedded photos.

A. ACCIDENT

Location:	Lebec, CA
Date:	April 15, 2015
Aircraft:	Pitts S2E, Registration Number: N75BH, Serial #: 1251
NTSB IIC:	Millicent Hoidal

B. EXAMINATION PARTICIPANTS:

Howard Plagens
Senior Air Safety Investigator
National Transportation Safety Board
Desert Hot Springs, CA 92240

Millicent Hoidal
Aviation Accident Investigator
National Transportation Safety Board
Anchorage, AK 99513

C. SUMMARY

On April 15, 2015, about 0815 Pacific daylight time, a Pitts S2E, N75BH was destroyed when it collided with trees and mountainous terrain about 3 miles northeast of Lebec, California. The airline transport pilot, the sole occupant of the airplane, was fatally injured. The airplane was being operated as a visual flight rules (VFR) cross-country personal flight under Title 14, CFR Part 91, when the accident occurred. The airline transport pilot, the sole occupant, sustained fatal injuries. Instrument meteorological conditions (IMC) were reported in the area of the accident, and no flight plan had been filed. The accident flight originated at the Bakersfield Airport, Bakersfield, California about 0748, en route to Blythe, California.

According to family members, the accident pilot recently purchased the airplane and it was being flown to his home in Missouri when the accident occurred. When the airplane did not arrive in Blythe, a concerned family member notified the Federal Aviation Administration (FAA) who issued an alert notice (ALNOT) at 1502.

On April 15, about 1000, the airplane’s fragmented wreckage was subsequently located by a worker in a remote area of a private ranch.

On April 16, the National Transportation Safety Board (NTSB) investigator-in-charge (IIC), along with an additional NTSB investigator, traveled to the accident scene. The on-scene investigation revealed that the airplane impacted mountainous tree-covered ridgeline, at an elevation of about 4,000 feet mean sea level (msl). The debris field was about 500 feet long from the first observed point of impact. All of the airplane's major components were found at the wreckage site.

On April 17, the NTSB IIC, along with another NTSB investigator examined the engine and airframe at the facilities of Air Transport, Phoenix, Arizona, which revealed no mechanical anomalies that would have precluded normal operation.

The closest weather reporting facility was Sandberg (KSDB), about 10 miles southeast of the accident site. At 0813, an aviation routine weather report (METAR) was reporting, in part: Wind 340 degrees at 25 knots, peak gusts to 35 knots; visibility, 1 statute mile; clouds and sky condition, 200 feet overcast; temperature, 43 degrees F; dew point, 39 degrees F; altimeter, 30.18 inHg. Witnesses located near the accident site, at the time of the accident, reported that weather conditions were much worse than that being reported at the airport.

D. DETAILS OF THE INVESTIGATION

1.0 Examination

Examination of the recovered airframe and engine was conducted on April 16, 2015 at the facilities of Air Transport, Phoenix, Arizona. No evidence of preimpact mechanical malfunction was noted during the examination of the recovered airframe and engine.

Impact damaged Garmin 365 handheld global positioning systems receiver (GPS), iPad, iPad mini, and a ForeFlight Appero were recovered from the airplane. The units were sent to the National Transportation Safety Board Office of Research and Engineering for data extraction.

The airplane was equipped with an Insight Engine Graphic Monitor. The unit was removed from the instrument panel, and sent to the National Transportation Safety Board Office of Research and Engineering for data extraction.

2.0 Airframe Examination

Examination of the airframe revealed that the airframe structure was highly fragmented. The left wing sustained significantly more damage than the right wing. The wing aileron was attached to the right airframe structure, there were numerous disconnects within the flight control system, all identified fractured surfaces were jagged and angular.

All pieces of the flight control system were identified, connecting rods were bent and buckled. Outboard portion of each wing tip were accounted for. The airframes wooden spar was fragmented, along with portions of the ailerons. Components in the trees were unrecoverable.

The right rudder pedal continuity was established, the rudder assembly remained intact from the pedal to the control surface. The left side cable was splayed, the remaining cable was intact with the rudder pedal.

The spades were both detached and bent.

2.1 Airframe Exam Photos

Figure 1: Right wings

Figure 2: Lower left wing impact damage

Figure 3: Wreckage layout

3.0 Engine Examination

The engine separated from the airframe during the accident sequence and extensive impact related damaged was noted throughout. The propeller hub detached from the crankshaft flange; the propeller blades remained primarily intact, the end of one blade was found separated. The propeller blades were bent back with cordwise striations.

The engine was slung it from a hoist for examination. There were no holes in the crankcase or cylinders that indicated a catastrophic failure of the engine. Engine drive train continuity was established by manually rotating the crankshaft with a rod welded onto the crankshaft. The crankshaft rotated freely, and the valves moved approximately the same amount of lift in firing order. The exhaust exhibited ductile bending. Investigators obtained thumb compression on all cylinders in firing order. The #2 cylinder compression was weak due to a breached fuel injector and damaged spark plug from impact forces. The oil filter was breached and partially crushed.

The fuel pump's rubber diaphragm was unbroken. The engine driven fuel pump drive gear was undamaged, and the pump rotated freely. The rubber diaphragm in the fuel flow divider valve was unbroken, the screen was clean, and investigators did not observe any contamination. The fuel injectors and fuel flow divider were free of debris. Water/alcohol indicating paste did not indicate any water in the fuel from the fuel pump.

Investigators removed the top spark plugs; all center electrodes were circular elliptical, and clean with no mechanical deformation. The spark plug electrodes were gray, which corresponded to normal operation according to the Champion Aviation Check-A-Plug AV-27 Chart.

Investigators manually rotated the magnetos, and both magnetos produced spark at all posts for cylinders . The vacuum pump drive gear remained unbroken, and the vacuum pump turned freely. All vacuum pump vanes were whole, in position, and moved freely. The air filter was clean.

Examination of the engine revealed no mechanical anomalies that would have precluded normal operation.

3.1 Engine Exam Photos

Figure 4: Front view of engine

Submitted by: M. Hoidal