



NATIONAL TRANSPORTATION SAFETY BOARD
Office of Aviation Safety

Wreckage Examination Report

February 22, 2023

A. ACCIDENT WPR22LA271

Location: San Jose, California
Date: July 22, 2022
Time: 1911 PDT
Operator: Private
Aircraft: Piper PA-32-301
Registration: N300BH

B. PARTICIPANTS or GROUP NAME:

Stephen Stein (IIC)
National Transportation Safety Board
Federal Way, Washington

Mark Platt
Lycoming Engines
Williamsport, Pennsylvania

Michael Staadt
Federal Aviation Administration
San Jose, California

Kathryn Whitaker
Piper Aircraft
Vero Beach, Florida

C. SUMMARY

On July 22, 2022, about 1911 Pacific daylight time, a Piper PA-32-301 airplane, N300BH, was substantially damaged when it was involved in an accident near San Jose, California. The pilot

was seriously injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 business flight.

The accident pilot was in the hospital and not available for an interview. According to the pilot's wife, her husband had planned to fly the airplane in the airport traffic pattern before landing at a nearby airport. Airport operations reported that the airplane was departing to the north at the time of the accident. The pilot's wife reported that her husband experienced a total loss of engine power shortly into his climb from approximately 500 ft mean sea level. Audio of the accident flight was caught by a nearby surveillance camera located in the accident airplane's route of flight approximately 0.4 nm north of the departure end of runway 31R. The audio captured an increase in engine volume about 1910:41, which was followed by a sudden change in the engine sound about 13 seconds later. A sound that resembled an impact with terrain was captured in the audio about 1911:19.

The airplane subsequently impacted the ground and penetrated a fence before it came to rest about 0.3 nm northwest of the departure end of runway 31R. Photographs provided by law enforcement showed that the airplane came to rest upright. The left wing exhibited a steep upward bend about midspan and the right wing outboard leading edge was crushed. The forward fuselage was damaged and the engine was displaced from its normally mounted position.

D. DETAILS OF THE INVESTIGATION

The airplane was recovered to Plain Parts in Pleasant Grove, California where an examination was completed on November 15, 2022.



Photograph 1: Accident airplane prior to examination

D.1 Airframe Examination

D.1.1 Flight Controls

Continuity of the ailerons was traced from the cockpit flight controls to their respective control surfaces through separations at the turnbuckles, which had been manually unthreaded by recovery personnel. The stabilator was continuous from the cockpit controls to the clevises at the empennage and rudder control authority was continuous from the rudder pedals to the empennage.

The flap handle was in the retracted position and the elevator trim barrel displayed partial nose-up trim.

D.1.2 Fuel System

The wings were removed at the wing roots by recovery personnel. The right wing remained intact with leading edge damage at the outboard leading edge and the left wing was displaced upward about midspan with leading edge damage from the wing root to about midspan.

No residual fuel was observed in the right wing fuel tank. Water was deposited into the right wing fuel tank and was expelled from the fuel outlet port at the wing root. The left wing fuel tank was visibly breached and the left tank fuel screen was unobstructed. Both fuel tanks were free of debris.

All the fuel lines were secured to their respective ports at the fuel selector and electric boost pump.

The fuel selector and valve assembly were both in the left tank detent. Disassembly of the selector valve revealed several ounces of blue colored fluid consistent with 100 low lead aviation grade gasoline. The fuel did not display any evidence of water contamination following a test using water finding paste. The valve also did not exhibit any evidence of foreign object ingestion or obstructions.

The fuel pump inlet port was submerged in water and the unit was connected to a 24v battery to facilitate a functional test. The pump motor rotated continuously during the test and water was expelled through the outlet port without any evidence of an obstruction.



Photograph 2: Electric fuel pump and fuel sample

D.2 Engine

The engine was a Lycoming Engines IO-540-K165, s/n L-19079-48A, an air-cooled, horizontally opposed, 300 hp reciprocating engine. The push rods to the cylinder no. 1 exhaust valve, the cylinder no. 5 intake valve and the cylinder no. 6 exhaust valve were crushed. The left hand engine mount near the top of the accessory case had separated and the right hand mount at the top of the accessory case was partially fractured. Additionally, the propeller spinner was crushed aft.



Photograph 3: Engine prior to examination

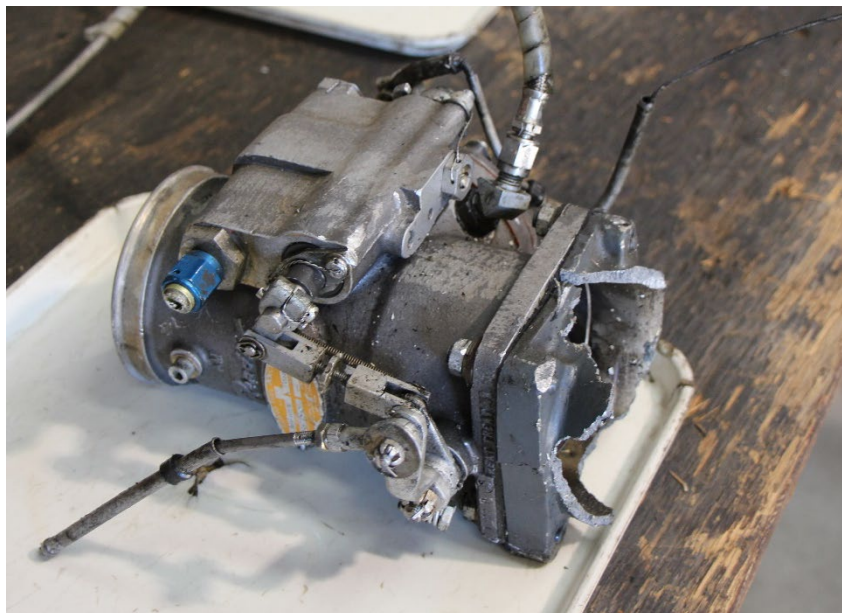
Mechanical continuity was established throughout the rotating group, valve train and accessory section as the crankshaft was manually by hand rotated at the propeller. Thumb compression was achieved at all six cylinders and the valves displayed normal lift as the crankshaft was rotated. Examination of the cylinders combustion chamber interior components using a lighted borescope revealed normal piston face and valve signatures, and no indications of foreign ingestion or detonation.

The right magneto was a Slick model no. 6350 and the left magneto was a Slick model no. 6351. Both magnetos were displaced from the accessory case due to overload separation and the magneto flanges remained clamped to their respective mounting pads. All of the ignition harness coils were secured tightly to their respective spark plugs. The right magneto leads were cut and spark was observed at all six of the ignition harness leads as the magneto was rotated by hand at the drive. The left magneto was fragmented due to the absorption of energy sustained during the accident. The top and bottom spark plugs were manufactured by Champion, model RHM 38E massive electrode plugs. Each of the 6 top spark plugs were secure at their respective ports and an inspection of the electrodes revealed they were gray in appearance, consistent with normal wear when compared to the Champion AV27 plug condition chart. The spark plugs were free of mechanical damage.



Photograph 4: Top spark plugs

The fuel injection servo was displaced from the engine accessory case due to overload separation. Both the mixture and throttle control arms were secure at the servo and there was no evidence of internal obstructions at the throat of the servo. A trace amount of straw-colored liquid was drained from the fuel servo.



Photograph 5: Fuel servo



Photograph 6: Sample from fuel servo

All six fuel injection nozzles remained attached at each cylinder with their respective fuel lines attached. The nozzles were free of visible contamination.

The flow divider remained attached to the top of the engine case. The divider was free of debris and the diaphragm was pliable and the spring was unremarkable. The hose from the fuel servo to the flow divider was removed by recovery personnel. The fuel pump diaphragm was intact and pliable and the pump was free of internal mechanical malfunction and obstruction to flow.

The oil suction screen was free of debris.



Photograph 7: Oil suction screen

The foam filter was intact and did not contain any obstructions. The airbox was in the bypass position, but was free of obstructions.

The exhaust baffles were intact free of obstructions.

The three bladed constant speed propeller remained attached at the crankshaft flange. All three blades remained attached to the hub. Blades A and B were bent aft about midspan. Blade C was bent aft near the blade tip. The propeller governor was attached at its mounting pad and the pitch control rod was still attached at the control wheel.



Photograph 8: Propeller