



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety

Western Pacific Region

December 17, 2018

AIRPLANE EXAMINATION & ENGINE RUN

WPR18LA070

(10 Pages)

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Reno, Nevada

January 17, 2018

1520 PST

Cessna 172P – N52492

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HISTORY OF FLIGHT

On January 17, 2017, about 1520 Pacific standard time, a Piper PA-32-300, N4027W, was substantially damaged when it impacted the ground during a forced landing in Reno, Nevada. The private pilot and flight instructor were not injured. The airplane was operated as a personal flight, conducted under the provisions of *14 Code of Federal Regulations Part 91*. Visual meteorological conditions prevailed and a flight plan was not filed for the cross-country flight, which departed Reno/Tahoe International Airport (RNO), Reno, Nevada at 1520 and was destined for Hawthorne Industrial Airport (HTH), Hawthorne, Nevada.

According to the flight instructor, and pilot at the time of the accident, he was instructing the airplane owner to satisfy a checkout requirement imposed by the owner's insurance company. Prior to takeoff, the pilot and the owner performed a weight and balance computation, visually inspected the airplane for fuel quantity, verified oil quantity, and completed a walk-around inspection of the airplane's control surfaces. After an uneventful engine start, the pilot contacted ground control who instructed him to taxi to runway 16L. He followed the airplane's "before takeoff" checklist and performed an engine run-up to 2,000 rpm at which time he leaned the

fuel/air mixture about 50° rich of peak to accommodate a departure from a high field elevation. The pilot observed a drop of about 100 rpms when he selected each magneto. He then set 10° of wing flaps, verified the fuel selector was on the left main fuel tank and turned the auxiliary fuel pump on. The takeoff and initial climb were normal; however, the airplane experienced a total loss of engine power when it reached an altitude of approximately 300 ft. above ground level. According to the pilot, the engine stopped firing rapidly with no pre-indication. He started a turn to the right over runway 16R, but quickly determined the airplane would not be able to land on the remaining runway, but continued the turn. The airplane's stall warning horn annunciated during the descent, and the pilot responded by decreasing the airplane's pitch attitude. During touchdown, the airplane impacted gravel, slid, and came to rest between taxiways "A" and "B."

A postaccident examination of the airplane by the Federal Aviation Administration revealed substantial damage to fuselage and wings.

WRECKAGE AND IMPACT INFORMATION

Initial Observations

The airplane was recovered and to a locked hangar at RNO. A postaccident examination of the airplane and engine was completed on April 24, 2018 by representatives of Piper Aircraft Company under the supervision of the National Transportation Safety Board Investigator-in-Charge and one representative of the Federal Aviation Administration.

The airplane was photographed in its post-recovery condition. The inboard right wing leading edge displayed a concaved depression and green paint transfer marking at the air inlet screen. Bending was observed about midspan on the right flap, which had separated from its outboard attachment point. The outboard right wing exhibited scrape markings and cracked skin at the trailing edge and the right wing tip tank vent was missing. Punctures were observed in the bottom and top of the right wing. The right main landing gear had separated at the lower strut.

The left horizontal stabilator displayed dents along the leading edge and the right horizontal stabilator was punctured and exhibited scrape markings along the lower skin. Paint chipping was observed at the vertical stabilizer.

The left wing spar was deformed and the left wing leading edge skin was buckled and torn. The left main landing gear fairing displayed buckling and a red paint transfer marking.

The upper engine mount brace was fracture separated at the firewall and both the left and right lower braces were bent.

Fuel System

Several ounces of fuel that resembled 100 low lead aviation grade gasoline was sumped through the fuel strainer, but did not show any water contamination or debris. The fuel selector moved normally through its detents from the OFF, LEFT TIP, LEFT MAIN, RIGHT MAIN, and

RIGHT TIP positions. The auxiliary fuel pump motor was heard when the pump was engaged at the cockpit.

Flight Control System

Flight control continuity was traced from the cockpit to the elevator, rudder, and ailerons.

Engine Run

The airplane was moved to an open area outside the airplane hangar and secured with wheel chocks and a tether to facilitate an engine run. The propeller did not display any blemishes and appeared to be intact, thus a replacement propeller was not installed. Approximately three gallons of 100 low lead aviation grade gasoline were deposited into the left tip tank. The airplane started normally and was set at idle power (~1,000 rpm) for about one minute before the test began. The throttle was advanced to three separate power settings with the fuel pump engaged for while the engine was advanced to the first two power settings. During the engine test run, an excessive quantity of fuel was observed from the engine driven fuel pump hose. The results of the engine run are shown in the table below. The exhaust gas temperature values could not be extracted from the onboard JPI engine monitor.

Parameter	Power Setting No. 1	Power Setting No. 3	Power Setting No. 3
Tachometer (rpm)	1,600	1,900	2,600
Manifold Pressure (in. Hg)	11	13	25
Fuel Pressure (PSI)	19	21	22
Fuel Flow (GPH)	5	6	8
Left Magneto Drop	1,500	1,800	
Right Magneto Drop	1,400	1,800	