



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

December 17, 2017

SUMMARY OF AIRPLANE EXAMINATION (WPR17FA023)

A. ACCIDENT

Location:	Moss Beach, California
Date:	November 18, 2016
Aircraft:	Cessna 172N
NTSB Investigator-in-Charge	Thomas Little

B. EXAMINATION PARTICIPANTS

Thomas Little
Senior Aviation Accident Investigator
National Transportation Safety Board
Federal Way, Washington

Michael Arraiz
Aviation Safety Inspector
Federal Aviation Administration
Alameda, California

Michael Hicks
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Peter Basile
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Troy Helgeson
Senior Air Safety Investigator
Lycoming engines
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C. SUMMARY

On November 18, 2016, about 1120 Pacific standard time, a Cessna 172N, N6610D, sustained substantial damage after impacting terrain and objects in a residential area near Moss Beach, California, following a loss of control while on final approach to Half Moon Bay Airport (HAF), Half Moon Bay, California. The private pilot sustained serious injuries, and the non-pilot rated passenger was fatally injured. The personal cross-country flight was being operated in accordance with *14 Code of Federal Regulations Part 91*, and a flight plan was not filed. Visual meteorological conditions prevailed for the flight, which originated from the Sacramento Executive Airport (SAC), Sacramento, California, about 1015, with HAF as the destination airport.

An examination of the accident site on November 19th by representatives from the National Transportation Safety Board and Textron Aviation, revealed that the airplane came to rest in a residential area up against the southwest corner of a single-family home. During the accident sequence, the airplane had initially touched down on a paved road about 240 ft south-southeast of the site, then proceeded on a north-northwest heading, during which it impacted a second residence and two vehicles before coming to rest against the second home. The investigative team confirmed that all components necessary for flight were accounted for at the accident site. The airplane was recovered to a secured storage facility for further examination.

D. DETAILS OF THE EXAMINATION

1.0 Accident Site Examination

The airplane had descended into a residential area about 1,822 ft northwest of the HAF Runway 12 threshold. The initial point of impact was identified as two parallel, black in color, rubber tire marks, which were observed on a residential asphalt street about 245 ft southwest of the airplane's main wreckage site. The airplane continued southwest to northeast heading across an open field that was about 100 ft wide, and subsequently struck a wooden fence that separated the field from the first residence impacted. The airplane then continued a northeast

heading as it impacted the northeast corner of the roof of the first residence, which was followed by impact with a utility truck; impact was consistent with the tire tread pattern found on the airplane's landing gear tires. Further, the airplane's right wing tip and a landing gear strut were found in the front yard of the first residence.

The wreckage path then continued for about 60 ft in a northeasterly direction. The nose landing gear was located about 30 ft northeast of the utility truck, and the principal wreckage came to rest on the southwest corner of a second residence. The lower fuselage was observed to have come to rest flush against the brick structure of the second residence with the engine fire wall resting upright on the ground. The empennage had separated just behind the rear passenger seats, and was penetrated by the roof structure. The empennage was folded on top of the cabin, with the vertical stabilizer and rudder resting on the ground. The horizontal stabilizer and elevator remained attached to the fuselage.

The left wing remained attached to the fuselage, and the wing strut remained attached to the lower fuselage. The left flap and one-half of the inboard aileron were attached to the left wing.

The right wing, which had separated from the fuselage, was observed to have impacted a white cargo van that was parked in the adjacent driveway, about 7 ft from the main wreckage site.

About 4 ft of the outboard right aileron was separated from the wing, and was located next to the fuselage. The inboard section of the right aileron remained attached to the wing. Additionally, the right flap remained attached to the wing and appeared to be in the fully retracted position. The leading edge of the right wing sustained impact damage. About 5 ft of the right wing leading edge skin was separated at the wing's mid-span section. The outboard right wing leading edge exhibited a concave depression.

The engine, propeller and one of the landing gear struts were located under the right wing. The left and right main landing gear wheels were separated from the wreckage and found about 42 ft north of the fuselage, next to the backyard fence of the second residence.

2.0 Follow-up examination notes

A follow-up examination of the airframe and engine was conducted at the facilities of Plain Parts, Pleasant Grove, California, on November 20, 2016. The results of the examination revealed the following:

2.0.1 Airframe examination notes

The following airframe examination notes were provided to the NTSB IIC by a Textron Aviation Senior air safety investigator, as a result of an onsite and postaccident examination of the

accident airplane. The examinations were overseen by representatives from the NTSB and the FAA.

The aircraft descended into a residential area and skid marks were observed on Los Banos Avenue in a northeast direction. The skid marks turned abruptly to the left and two (main wheel) impact marks were observed on the street curb. The aircraft traveled down the side of the drainage ditch and became airborne again for approximately 50' (no wheel marks were observed in the grass). The aircraft touched down again in a grass field behind a residence before it impacted a fence and the back corner of the residence. The aircraft then struck a pickup truck on the driveway with the left main landing gear before it clipped a utility power pole guy wire with the outboard left wing and collided with a Mercedes cargo van in the driveway of a second residence. The aircraft came to rest on the nose with the belly of the fuselage resting against the garage of the second residence.

The left wing leading edge sustained fence impact damage outboard of the lift strut and tapering compression damage at the wing tip. An approximately 2' long section of the outboard left aileron was separated from the wing and located next to the fuselage. The remainder of the left aileron remained attached to the wing. The left flap remained attached to the wing and appeared to be in the fully retracted position.

The right wing was partially separated from the fuselage and remained attached by the flap and aileron control cables. The right wing lift strut was separated and was found in the backyard of the first residence. Approximately 4 ft of the outboard right aileron was separated from the wing and was located next to the fuselage. The remainder of the right aileron remained attached to the wing. The right flap remained attached to the wing and appeared to be in the fully retracted position. The leading edge of the right wing sustained fence impact damage. An approximately 5' long section of the right wing leading edge skin was separated from the middle of the wing. The outboard right wing leading edge was crushed aft.

The tail was partially separated from the fuselage. The left and right horizontal stabilizers remained attached to the fuselage and sustained leading edge impact damage. The left and right elevators remained attached to the horizontal stabilizers, but the torque tubes were impact separated from the aft elevator bell crank. The vertical stabilizer and rudder remained attached and sustained minor impact damage.

The left and right main landing gear struts were separated from the fuselage. One of the gear struts was found in the front yard of the first residence and the other was found under the right wing next to the fuselage. The left and right main wheel and tire assemblies were separated and found next to the back yard fence of the second residence.

The aircraft was equipped with rudder trim. The rudder trim position was undetermined due to pedestal impact damage.

Control cable continuity was established for all flight controls. The flaps were fully retracted. The elevator trim tab actuator measurement was unreliable due to tail impact damage.

The fuel strainer assembly cork gasket was installed off center and was partially obstructing the hole that transfers fuel from the strainer assembly to the engine.

The fuel selector handle was set to BOTH. Several gallons of fuel were recovered from the breached right wing tank and first responders reported the left wing tank had leaked a significant amount of fuel at the accident site.

The #1 seat lap belt was cut by first responders; the latch portion of the cut lap belt remained attached to the shoulder harness. The buckle was unlatched.

The #2 seat shoulder harness was cut by first responders; the shoulder harness fragment remained attached to the lap belt latch. The buckle was unlatched.

A second altimeter installed in the left side of the instrument panel indicated ~155' and it was set to 30.04 inHg.

The #2 and #4 bottom spark plugs were worn out normal and oil soaked. The carburetor was disassembled and the bowl was approximately half full of 100LL; no water was detected using SarGel. The fuel strainer screen and the carburetor fuel inlet screen were clean. Writing on the oil filter indicated the last oil change occurred on 10-29-16 at a tachometer time of 5,737.9 hours.

Propeller blade #1 was bent approximately 45° aft about 6" from the tip. Propeller blade #2 was bent approximately 30° aft near mid span. The cambered side of both blades had scratches and score marks. The leading edges of both propeller blades had impact gouges near the tips.

2.0.2 Engine examination notes

The following airframe examination notes were provided to the NTSB IIC by a Lycoming Engines Senior air safety investigator, as a result of an onsite and postaccident examination of the accident airplane. The examinations were overseen by representatives from the NTSB and the FAA.

The aircraft was a 1979 Cessna 172N, a single engine high wing, fixed gear aircraft powered by a 180 HP Lycoming reciprocating engine (O-360-A4M) and a 2 bladed Sensenich fixed pitch propeller. The engine logbook showed 1224.08 hours since a factory overhaul dated 11/10/2010. The last annual inspection was dated 4/6/2016.

The engine was examined at the facilities of Plain Parts, Pleasant Grove, CA. on 11/20/2016. The NTSB, FAA, Textron Aviation, and Lycoming were present for the examination.

The engine was hung from a hoist for the examination.

The propeller was found still attached to the crankshaft. Propeller blade #1 was bent ~45° aft about 6" from the tip. Propeller blade #2 was bent ~30° aft near mid span. The cambered side of both blades had scratches and score marks. The leading edges had impact gouges near the tips.

The rear accessories, and top sparkplugs were removed for the examination.

The crankshaft was rotated by hand, and thumb compression was felt at all the cylinders. Drivetrain continuity was established throughout.

The cylinders were borescope inspected and no anomalies were noted.

The sparkplugs appeared normal as compared to the Champion Aviation Check a Plug Chart AV-27. Bottom plugs #2 and #3 were oil fouled.

Both magnetos were rotated by hand and spark was observed at all leads.

The oil pick up screen was found free of debris.

The carburetor inlet screen was also found free of debris. The carburetor was disassembled, and no anomalies noted.

Fuel was noted in the float bowl.