# Aviation Investigation Final Report

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| **Location:** | Minden, Nevada | **Accident Number:** | WPR13FA116 |
| **Date & Time:** | February 6, 2013, 17:10 Local | **Registration:** | N328SP |
| **Aircraft:** | Cessna 172S | **Aircraft Damage:** | Destroyed |
| **Defining Event:** | Unknown or undetermined | **Injuries:** | 1 Fatal |
| **Flight Conducted Under:** | Part 91: General aviation - Personal | | |

## Analysis

The owner of the fixed-base operator (FBO) at the airport reported that the pilot stated to him that he wanted to go flying before it got dark. He added that the pilot had the airplane fully fueled and that he saw the airplane taxiing away from the FBO's hangar. An FBO employee who was monitoring the airport's UNICOM frequency reported hearing the pilot call for taxi then takeoff. The following day, the operator and FBO personnel noted that the airplane had not returned to the airport. A search was initiated, and the wreckage was located in the mountains 14 miles east of the airport.

Radar data showed the airplane at 8,600 ft mean sea level (msl) and then continuing on an easterly course while climbing to 11,400 ft msl. Ten minutes later, the airplane turned 180 degrees and then proceeded in a westerly direction. About 1 1/2 minutes later, the airplane entered a rapid descent. The final radar return was at 10,500 ft msl in the immediate vicinity of the airplane wreckage. The airplane collided with terrain in a nose-down attitude. Postaccident airplane wreckage examination did not reveal any mechanical failures or malfunctions that would have precluded normal operation. The pilot's radio transmissions were routine. Although the pilot had recently returned from Afghanistan to address a personal situation, and, therefore, was likely experiencing some fatigue and emotional strain during the period preceding the accident, there was insufficient evidence to determine the extent to which these factors affected the pilot's performance or ability to maintain airplane control.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilot's failure to maintain airplane control while maneuvering over mountainous terrain.

## Findings

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| **Aircraft** | Altitude - Not attained/maintained |
| **Personnel issues** | Aircraft control - Pilot |

# Factual Information

## History of Flight

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| **Maneuvering** | Collision with terr/obj (non-CFIT) |
| **Uncontrolled descent** | Unknown or undetermined (Defining event) |

HISTORY OF FLIGHT

On February 6, 2013, about 1710 Pacific standard time (PST), a Cessna 172S, N328SP, impacted mountainous terrain 14 miles east of Minden, Nevada. The airplane was registered to an individual, and operated by Flying Start Aero, as a rental under the provisions of 14 Code of Federal Regulations, Part 91. The pilot was fatally injured, and the airplane was destroyed. Visual meteorological conditions prevailed, and a visual flight rules flight plan had not been filed. The flight originated at Minden-Tahoe Airport, Minden, about 1645.

The pilot stated to personnel at the Minden-Tahoe Airport that he wanted to go flying before it got dark. He had the airplane fully fueled and was seen taxiing away from the fixed base operations (FBO) hangar. FBO personnel monitoring the airport UNICOM frequency recalled hearing the pilot call for taxi then take off at 1645. The following day it was observed by the operator and FBO that the airplane had not returned to the airport. A search was initiated and the Douglas County Sheriff located the wreckage at 1500, in the mountains 14 miles east of the Minden-Tahoe Airport.

A review of a recording of the common traffic advisory frequency (CTAF), 123.05 MHz, Minden-Tahoe Airport, during the time period of 1630 to 1701 PST revealed that the pilot of N328SP called for taxi at 1646, and at 1649 transmits that he is taking runway 34 departing to the east. The final radio call occurs at 1651, when he transmits that he is departing runway 34 for a left downwind departure.

Radar data obtained from the 84th RADES Unit, Hill Air Force Base, was compiled to plot ground track and altitude profiles. The plots depict the airplane being acquired by radar at 1657, at 8,600 feet mean sea level. The airplane's track continues on an easterly course in a climb to 11,400 feet. At 1707, the track turns 180 degrees and proceeds in a westerly direction. At 1708:24, the airplane enters a rapid descent. The final radar return was at 1708:48, at 10,500 feet in the immediate vicinity of where the airplane wreckage was located.

PERSONNEL INFORMATION

The pilot, age 46, held a commercial pilot certificate issued on November 28, 2007, with ratings for airplane single-engine land, airplane multi-engine land, rotorcraft-helicopter, instrument airplane and helicopter. He also held a flight instructor certificate issued on September 9, 2011, with ratings for airplane single and multiengine, rotorcraft-helicopter, and instrument airplane and helicopter. The pilot held a second-class medical certificate with no limitations issued on July 21, 2011. The pilot's flight logbook was not located by investigators. The pilot reported on his July 21, 2011, medical certificate application that he had 1,550 hours of flight experience.

The pilot was employed by a military security contractor and specialized as a K9 handler. His current contract was a security job for US forces in Afghanistan. On Monday, February 4, he had returned from Afghanistan on leave to spend some time with his wife. His wife stated to the Douglas County Sheriff's Deputy that their relationship "was not as smooth" as it normally was in the past. She said that she did not have much contact with the pilot after Monday other than text messages, and on Wednesday he sent her a message that he'd spend the night in a hotel.

## AIRCRAFT INFORMATION

The four seat, high-wing, fixed-gear airplane, serial number 172S8256, was manufactured in 1999. It was powered by a Lycoming IO-360-L2A, 180-hp engine and equipped with a McCauley fixed pitch propeller model 1A170EJHA7660. Review of copies of the maintenance logbook records showed an annual inspection completed on January 15, 2013, at a total airframe time of 6,355.5 hours and a tach time of 3,214.5 hours. The engine total time since major overhaul was 1,870.1 hours. The tach time observed at the accident site was 3,234.2 hours.

## METEOROLOGY

The nearest weather reporting station was located at the Carson Airport approximately 19 miles northwest of the accident site. The aviation weather observation system (AWOS) reported at 1715 PST that the sky was clear, visibility was 10 statute miles, and the wind was from 100 degrees at 4 knots.

## WRECKAGE AND IMPACT INFORMATION

The airplane wreckage was located on an 8-degree slope about 1.5 miles below and west of Rice Peak, at an elevation of 6,674 feet msl, 14 miles east of Minden. The terrain was populated with 20-foot-tall pinion pines and juniper trees. The ground was snow covered. The initial point of impact with terrain was identified by fiberglass fragments, a wing tip position light with red lens fragments, and freshly broken tree branches. Trees on either side of the initial impact point appeared undisturbed with no broken branches or evidence of being topped. The main wreckage was located on a bearing of 088 degrees magnetic, 63 feet from the initial impact point. About halfway between the initial impact point and the main wreckage was the propeller hub and one propeller blade imbedded into the ground with disturbed earth surrounding it. The main wreckage consisted of the engine, airplane cabin, left and right wings, empennage, and tail. The tail was elevated in the air and bent over the cabin in scorpion fashion. On-scene examination of the wreckage established control continuity of all flight control surfaces to the cockpit by tracing control cables through multiple separations that were consistent with overload. The flap actuator was in the full retracted position (flaps up). Elevator trim actuator was measured extended 1.5 inches.

The engine was examined on February 11, 2013, at a recovery facility in Pleasant Grove, California, by technical representatives of Lycoming Engines and Cessna Aircraft Company under the supervision of the NTSB investigator-in-charge (IIC). The engine was a Lycoming IO-360-L2A, serial number L-30896-51A. The propeller and crankshaft flange had separated from the crankshaft and the fracture surfaces were granular with 45-degree shear angles. All four cylinder jugs were attached to the engine case, all push rods were present, and all valves were present on the cylinders. Both left and right induction tubes and exhaust manifolds were present, with the left side exhaust manifold exhibiting plastic deformation and crushing. The top spark plugs were removed and no evidence of mechanical

damage was observed. The engine crankshaft was rotated by hand using the vacuum pump drive gear. Thumb compression was achieved on all cylinders and the valves moved in sequence. The fuel pump was removed and disassembled; the diaphragm was present, pliable, and undamaged.

The 2 blade fixed pitch McCauley propeller had one blade separated from the hub at the shank. The remaining blade exhibited leading edge polishing, chordwise scratches, and a leading edge gouge at the tip. The separated propeller blade's tip was curled aft, deformed in a single s-bend with evidence of a slight twist, and the outboard third of the blade was bent slightly forward. The separated blade also exhibited chordwise scratches across its entire face.

## MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot on February 8, 2013, by the Washoe County Medical Examiner, Reno, Nevada. The medical examiner's noted opinion was that the cause of death was total body blunt trauma.

The FAA's Civil Aerospace Medical Institute, Oklahoma City, Oklahoma, performed forensic toxicology on specimens from the pilot with negative results for carbon monoxide, ethanol, or listed drugs.

## TESTS & RESEARCH

The pilot's Apple iPhone 4 was recovered on-scene and sent to the NTSB Vehicle Recorder Laboratory for examination. The iPhone 4 is a touch-screen operated smart-phone capable of voice calling, text messaging, email, photo/video recording, audio playback, and numerous other specialized functions depending on configuration. Application data is stored in non-volatile memory and may include call logs, text messaging logs, image, video, and position location information.

Upon examination of the phone by laboratory technicians the iPhone was found to start normally, and was examined by browsing the user interface and through a forensic download of content. Review of email and text messages revealed that the pilot had departed for Afghanistan in late November, 2012, and he had initially canceled his scheduled leave for February with leave planned for 2 weeks in May. On January 31, 2013, the pilot had email correspondence with his wife related to their marriage. The same day the pilot requested and received emergency personal leave to return to Nevada. The pilot left Kabul, Afghanistan, on February 3, 2013, and traveled by way of Dubai, Paris, and Salt Lake City, to arrive in Reno about 1743 on February 4th. On February 5th numerous text messages were exchanged with his wife. On February 6th the pilot sent an email to his Afghanistan work supervisor requesting return from emergency leave on February 10th, and also exchanged texts relating to his marriage during the day with both his wife and separately with a friend. Text messages relating to the accident flight began around 11:29, with the pilot inquiring of his wife about personnel at the airport and later stating he wanted to go to the airport when no one was around. About 14:15, the pilot and wife exchanged texts about key and building access at the airport; and at 1518, they exchanged greetings. No further text messages were sent by the pilot.

## Pilot Information

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| **Certificate:** | Commercial; Flight instructor | **Age:** | 46 |
| **Airplane Rating(s):** | Single-engine land; Multi-engine land | **Seat Occupied:** | Left |
| **Other Aircraft Rating(s):** | Helicopter | **Restraint Used:** | 3-point |
| **Instrument Rating(s):** | Airplane; Helicopter | **Second Pilot Present:** | No |
| **Instructor Rating(s):** | Airplane multi-engine; Airplane single-engine; Helicopter; Instrument airplane; Instrument helicopter | **Toxicology Performed:** | Yes |
| **Medical Certification:** | Class 2 Without waivers/limitations | **Last FAA Medical Exam:** | July 31, 2011 |
| **Occupational Pilot:** | No | **Last Flight Review or Equivalent:** | |
| **Flight Time:** | 1550 hours (Total, all aircraft) | | |

## Aircraft and Owner/Operator Information

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| **Aircraft Make:** | Cessna | **Registration:** | N328SP |
| **Model/Series:** | 172S | **Aircraft Category:** | Airplane |
| **Year of Manufacture:** | | **Amateur Built:** | |
| **Airworthiness Certificate:** | Utility | **Serial Number:** | 172S8255 |
| **Landing Gear Type:** | | **Seats:** | 4 |
| **Date/Type of Last Inspection:** | January 15, 2013 Annual | **Certified Max Gross Wt.:** | 2550 lbs |
| **Time Since Last Inspection:** | 19 Hrs | **Engines:** | 1 Reciprocating |
| **Airframe Total Time:** | 6364 Hrs at time of accident | **Engine Manufacturer:** | LYCOMING |
| **ELT:** | C91A installed, activated, aided in locating accident | **Engine Model/Series:** | IO360 SER |
| **Registered Owner:** | MCFADDEN JAMES D | **Rated Power:** | 180 Horsepower |
| **Operator:** | Flying Start Aero | **Operating Certificate(s) Held:** | None |

## Meteorological Information and Flight Plan

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| **Conditions at Accident Site:** | Visual (VMC) | **Condition of Light:** | Day |
| **Observation Facility, Elevation:** | KCEV | **Distance from Accident Site:** | 19 Nautical Miles |
| **Observation Time:** | 17:15 Local | **Direction from Accident Site:** | 330° |
| **Lowest Cloud Condition:** | Clear | **Visibility** | 10 miles |
| **Lowest Ceiling:** | None | **Visibility (RVR):** | |
| **Wind Speed/Gusts:** | 4 knots / None | **Turbulence Type Forecast/Actual:** | / None |
| **Wind Direction:** | 100° | **Turbulence Severity Forecast/Actual:** | / N/A |
| **Altimeter Setting:** | 30.05 inches Hg | **Temperature/Dew Point:** | 7°C / -7°C |
| **Precipitation and Obscuration:** | No Obscuration; No Precipitation | | |
| **Departure Point:** | MInden, NV (KMEV) | **Type of Flight Plan Filed:** | None |
| **Destination:** | MInden, NV (KMEV) | **Type of Clearance:** | None |
| **Departure Time:** | 16:45 Local | **Type of Airspace:** | |

## Airport Information

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| **Airport:** | Minden-Tahoe Airport KMEV | **Runway Surface Type:** | |
| **Airport Elevation:** | 4722 ft msl | **Runway Surface Condition:** | |
| **Runway Used:** | | **IFR Approach:** | None |
| **Runway Length/Width:** | | **VFR Approach/Landing:** | None |

## Wreckage and Impact Information

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| **Crew Injuries:** | 1 Fatal | **Aircraft Damage:** | Destroyed |
| **Passenger Injuries:** | | **Aircraft Fire:** | None |
| **Ground Injuries:** | N/A | **Aircraft Explosion:** | None |
| **Total Injuries:** | 1 Fatal | **Latitude, Longitude:** | 38.981388,-119.492774 |

## Administrative Information

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| **Investigator In Charge (IIC):** | McKenny, Van |
| **Additional Participating Persons:** | William Kunder; Federal Aviation Administration; Reno, NV<br>Andrew Hall; Cessna Aircraft; Wichita, KS<br>Mark Platt; Lycoming Engines; Van Nuys, CA |
| **Original Publish Date:** | February 12, 2015 |
| **Last Revision Date:** | |
| **Investigation Class:** | Class |
| **Note:** | The NTSB traveled to the scene of this accident. |
| **Investigation Docket:** | https://data.ntsb.gov/Docket?ProjectID=86164 |