# Aviation Investigation Final Report

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| **Location:** | Salmon, Idaho | **Accident Number:** | WPR18LA227 |
| **Date & Time:** | August 18, 2018, 11:50 Local | **Registration:** | N84CP |
| **Aircraft:** | Cessna 182 | **Aircraft Damage:** | Substantial |
| **Defining Event:** | Other weather encounter | **Injuries:** | 2 Serious |
| **Flight Conducted Under:** | Part 91: General aviation - Personal | | |

## Analysis

The pilot-rated passenger reported that the accident pilot fueled the airplane then conducted a short formation flight of two airplanes with the accident airplane in the lead to a backcountry airstrip. The trail pilot reported that, during the briefing for the return flight, he and the accident pilot decided to take off to the north parallel to the west side of a river, and shortly after, to turn left 180° toward the south back toward the departure airport.

According to the pilot-rated passenger, during takeoff and initial climb, the engine was producing power, and the airplane climbed as expected. The trail pilot, who watched the takeoff, confirmed that the takeoff and initial climb seemed normal. Shortly thereafter, the trail pilot saw the accident pilot make a 90° left turn toward the west and head up a canyon, which he said confused him because "you cannot out climb the rising terrain to the west, and it is a tight little canyon to turn in." He indicated in a postaccident statement that he then asked the accident pilot, "where are you going? And, the pilot replied, "we're going down." The trail pilot indicated that he then asked the accident pilot if he was going "downstream," and the accident pilot responded, "'crashing' or something similar." He received no further communication from the accident pilot.

The pilot-rated passenger stated that he was unaware of any issues with the airplane before the accident pilot's exchange with the trail pilot. He added that, after the accident, the accident pilot told him that he thought that the loss of lift was due to the airplane encountering a downdraft. He then looked at the cockpit panel and saw that the manifold pressure gauge was reading 20 inches of manifold pressure. He opined that the engine was not producing power and that the airplane was descending. According to the pilot-rated passenger, the accident pilot then said he was going "to put the[air]plane in some trees." The passenger stated that the accident pilot turned slightly to the left, he managed the airspeed, and then the airplane settled into a stand of trees "slow and level" as the stall warning horn was "chirping." The airplane became lodged in the trees about 10 to 12 ft above the ground. When the passenger noticed fire emanating from the engine cowling, he and the accident pilot egressed the airplane. Shortly thereafter, the airplane exploded and was subsequently consumed by fire.

Examination of the area that bordered the departure route revealed that it was very confined with a turn radius of about 800 ft and that rising terrain higher than 6,500 ft mean sea level existed on the east and west sides of the north/south-oriented river.

The airframe and engine were destroyed by the postimpact fire; however, examination of the available evidence did not reveal any mechanical failures or malfunctions that would have precluded normal operation. Based on the accident pilot's conversation with the pilot-rated passenger, the airplane likely lost altitude due to an inadvertent encounter with downdraft conditions, and due to the loss of altitude, the confined area of the canyon did not allow the pilot to attempt the 180° course reversal. The pilot continued heading upstream in the middle of the canyon to make a precautionary landing to unsuitable mountainous terrain at the slowest airspeed possible while maintaining airplane control as it collided with trees.

## Probable Cause and Findings

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

The pilot's inadvertent encounter with downdraft conditions, which resulted in a loss of altitude, and the pilot's subsequent decision to conduct a precautionary landing into a stand of trees.

### Findings

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| **Aircraft** | Altitude - Not attained/maintained |
| **Personnel issues** | Decision making/judgment - Pilot |
| **Environmental issues** | Downdraft - Effect on operation |
| **Environmental issues** | Mountainous/hilly terrain - Effect on operation |

# Factual Information

## History of Flight

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| **Maneuvering** | Other weather encounter (Defining event) |
| **Emergency descent** | Off-field or emergency landing |
| **Landing-flare/touchdown** | Collision with terr/obj (non-CFIT) |

On August 18, 2018, about 1150 mountain daylight time, a Cessna 182Q airplane, N84CP, was substantially damaged when it was involved in an accident near Salmon, Idaho. The airline transport pilot and pilot-rated passenger were seriously injured; the pilot succumbed to his injuries 3 months after the accident. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot-rated passenger reported that the accident pilot fueled the airplane then conducted a formation flight of two airplanes from McCall Municipal Airport (MYL), McCall, Idaho, to Flying B Ranch Airstrip (12ID), Salmon, Idaho., with the accident airplane in the lead. The trail pilot reported that, during the briefing for the return flight to MYL, he and the accident pilot decided to take off to the north parallel to the west side of a river, and shortly after, to turn 180° back toward MYL.

The pilot-rated passenger stated that the flight departed about 1115 with the accident pilot still in the lead airplane, that the takeoff and initial climb seemed normal, and that the airplane had power and climbed as expected. The trail pilot reported that he watched the takeoff and confirmed that everything seemed normal. Shortly after takeoff, the trail pilot asked the accident pilot, “where are you going?” and he replied, “We are going down.” The pilot-rated passenger stated that he was unaware of any issues with the airplane before this transmission. (He added that, after the accident, the pilot told him that he thought that the loss of lift was due to the airplane encountering “a downdraft.”)

After the transmission, the passenger looked at the cockpit panel and saw the manifold pressure gauge, which read 20 inches of manifold pressure, and that the airplane was descending. The accident pilot then told him that he was going to “put the [air]plane in the trees” then turned left. Subsequently, the airplane impacted a stand of trees “slow and level” as the stall warning horn was “chirping”. After the left wing impacted a tree, the airplane rotated 180° counterclockwise. The tail then impacted another tree as the airplane continued to rotate then break in half. The airplane continued rotating, and its right side impacted a third three and then came to rest. Subsequently, the pilot-rated passenger noticed fire emanating from the engine cowling, and he and the pilot egressed the airplane. Shortly after, the airplane exploded and was subsequently consumed by fire.

The trail pilot added that, when he was about 1/2 mile north of 12ID, he saw the airplane turn about 90° to the left on a westerly heading and that he thought that the accident pilot was then going to make the 180° turn "to head upstream as previously briefed." However, he then saw the accident airplane head up a creek, which he said confused him because "you cannot out climb the rising terrain to the west, and it is a tight little canyon to turn in." The trail pilot added that, in the backcountry they primarily speak about flying upstream and downstream, so he was confused about what the accident pilot meant when he said he was "going down." He said that he thought, "does he think he's going downstream through an impassable canyon?" He added that he asked the accident pilot, "downstream?" and that the accident pilot responded, "'crashing' or something similar." He received no further communication from the accident pilot.

Examination of the area that bordered the departure route revealed that it was very confined and had a turn radius of about 800 ft. Terrain rising higher than 6,500 ft mean sea level (msl) existed on both the east and west sides of the north/south-oriented river. The airplane came to rest lodged in a tree between about 10 and 12 ft above ground level in an approximate 15°-nose-down attitude.

The airframe and engine were destroyed by the postaccident fire. Postaccident examination of the available airframe and engine components did not reveal evidence of any preaccident mechanical malfunctions or failures that would have precluded normal operation.

At 1155, the Automated Surface Observing System at Challis Airport (LLJ), Challis, Idaho, located about 35 nautical miles southeast of the accident site, elevation 5,072 ft msl, reported wind calm, temperature 22°C, dewpoint 8°C, and an altimeter setting of 30.28 inches of mercury. Based on the atmospheric conditions that existed at the time of the accident, the density altitude was calculated to be 6,197 ft.

## Pilot Information

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| **Certificate:** | Airline transport | **Age:** | 56,Male |
| **Airplane Rating(s):** | Single-engine land; Multi-engine land | **Seat Occupied:** | Left |
| **Other Aircraft Rating(s):** | None | **Restraint Used:** | Unknown |
| **Instrument Rating(s):** | Airplane | **Second Pilot Present:** | Yes |
| **Instructor Rating(s):** | None | **Toxicology Performed:** | No |
| **Medical Certification:** | Class 2 With waivers/limitations | **Last FAA Medical Exam:** | June 12, 2018 |
| **Occupational Pilot:** | No | **Last Flight Review or Equivalent:** | |
| **Flight Time:** | 2523 hours (Total, all aircraft), 100 hours (Total, this make and model) | | |

## Aircraft and Owner/Operator Information

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| **Aircraft Make:** | Cessna | **Registration:** | N84CP |
| **Model/Series:** | 182 Q | **Aircraft Category:** | Airplane |
| **Year of Manufacture:** | 1979 | **Amateur Built:** | |
| **Airworthiness Certificate:** | Normal | **Serial Number:** | 18267422 |
| **Landing Gear Type:** | Tricycle | **Seats:** | 4 |
| **Date/Type of Last Inspection:** | June 12, 2018 Annual | **Certified Max Gross Wt.:** | 2348 lbs |
| **Time Since Last Inspection:** | | **Engines:** | 1 Reciprocating |
| **Airframe Total Time:** | 2386.8 Hrs as of last inspection | **Engine Manufacturer:** | Continental |
| **ELT:** | Installed, not activated | **Engine Model/Series:** | IO-470-F37B |
| **Registered Owner:** | | **Rated Power:** | 230 |
| **Operator:** | On file | **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:** | SMN,1069 ft msl | **Distance from Accident Site:** | 36 Nautical Miles |
| **Observation Time:** | 11:56 Local | **Direction from Accident Site:** | 77° |
| **Lowest Cloud Condition:** | Few / 11000 ft AGL | **Visibility** | 10 miles |
| **Lowest Ceiling:** | None | **Visibility (RVR):** | |
| **Wind Speed/Gusts:** | / | **Turbulence Type Forecast/Actual:** | None / None |
| **Wind Direction:** | | **Turbulence Severity Forecast/Actual:** | N/A / N/A |
| **Altimeter Setting:** | 30.28 inches Hg | **Temperature/Dew Point:** | 19°C / 11°C |
| **Precipitation and Obscuration:** | No Obscuration; No Precipitation | | |
| **Departure Point:** | Salmon, ID (121D) | **Type of Flight Plan Filed:** | None |
| **Destination:** | McCall, ID (MYL ) | **Type of Clearance:** | None |
| **Departure Time:** | 11:45 Local | **Type of Airspace:** | Class E |

## Wreckage and Impact Information

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| **Crew Injuries:** | 1 Serious | **Aircraft Damage:** | Substantial |
| **Passenger Injuries:** | 1 Serious | **Aircraft Fire:** | On-ground |
| **Ground Injuries:** | | **Aircraft Explosion:** | None |
| **Total Injuries:** | 2 Serious | **Latitude, Longitude:** | 44.990554,-114.74833 |

## Administrative Information

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| **Investigator In Charge (IIC):** | Little, Thomas | | |
| **Additional Participating Persons:** | Richard E Horner; Federal Aviation Administration; Boise, ID<br>Peter Basile; Textron Aviation ; Wichita, KS | | |
| **Original Publish Date:** | October 20, 2021 | **Investigation Class:** | 3 |
| **Note:** | The NTSB did not travel to the scene of this accident. | | |
| **Investigation Docket:** | https://data.ntsb.gov/Docket?ProjectID=98098 | | |