



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

April 30, 2019

SUMMARY OF AIRPLANE AND ENGINE EXAMINATION

(WPR18FA001)

This document contains 13 embedded photos.

A. ACCIDENT

Location:	Klamath Falls, Oregon
Date:	October 1, 2017
Aircraft:	Cirrus SR22, N6083D
NTSB Investigator-in-Charge	Thomas Little

B. EXAMINATION PARTICIPANTS

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

Richard Chagnon
Federal Aviation Administration
Flight Standards District Office
Hillsboro, Oregon

Chris Lang
Air Safety Investigator
Continental Motors, Inc.
Mobile, Alabama

Brannon Mayer
Senior Air Safety Investigator
Cirrus Aircraft
Duluth, Minnesota

C. SUMMARY

On October 1, 2017, about 1043 Pacific daylight time, a Cirrus Design Corp SR22, N6083D, was destroyed after impacting terrain while maneuvering at a low altitude in a remote mountainous area about 24 nautical miles west-northwest of Klamath Falls, Oregon. The private pilot and the sole passenger received fatal injuries. The airplane was registered to Cascade Forestry Inc., Gold Hill, Oregon. Instrument meteorological conditions were reported in the area at the time of the accident. 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. The flight departed Crater Lake-Klamath Regional Airport (LMT), Klamath Falls, Oregon, at about 1030, with the destination being Rouge Valley International- Medford Airport (MFR), Medford, Oregon.

In a postaccident interview with the National Transportation Safety Board (NTSB) investigator-in-charge (IIC), a local Oregon State Trooper, who was conducting fish and wildlife surveillance in the area at the time of the accident, reported hearing the airplane pass overhead near his location. The trooper stated that the airplane was on a westerly heading at a very low altitude, in the clouds, "the engine was screaming," and that the clouds at the time were at tree-top level. The trooper further reported that as the airplane passed over his position it started a turn to the left and continued to turn left with the "engine still screaming." This was followed shortly by the sound of a crash. The trooper opined that he and another trooper began searching for the downed airplane, however, by this time the clouds were at ground level, which hindered the ability to locate the airplane. The airplane was subsequently located the following morning on a ridge populated by thick tree growth and other vegetation.

In a postaccident interview with the NTSB IIC, an acquaintance of the accident pilot reported that he had spoken with the pilot at LMT prior to his departure for MFR on the morning of the accident. The acquaintance, who is a retired US Air Force F-15 pilot, stated that he had pointed out the clouds to the west, which were in the same direction that the accident pilot would be taking to MFR. The pilot replied that if he needed to, he would climb above the clouds and look for a hole to get down through. If he could not find a hole, then he would return to LMT.

D. DETAILS OF THE EXAMINATION

1.0 Accident Site Examination

On October 3rd and 4th, representatives from the NTSB, the Federal Aviation Administration, Continental Motors, Inc., and Cirrus Aircraft surveyed the accident site. The airplane had initially impacted a 40-foot tall tree at about the 25-foot level on a northeast heading; the top of the tree was observed severed. The second impact point (main impact crater) was at the base of a another 40-foot tall tree, approximately 40 to 50 feet northeast of the first impact point. The second tree was uprooted by the impact forces. It then continued northeast on about a 15° downslope before coming to rest about 100 ft. from the initial impact point. The airplane was highly fragmented during the accident sequence. The main impact crater at the base of the second tree was estimated to be about 2 to 3 feet in depth and about 6 feet in width. The nose landing gear was located just to the south of the main impact crater. The debris field extended approximately 150 feet on a heading of approximately 055 degrees. The main wreckage came to rest about 60 feet northeast of the main impact crater.

The separated propeller, with two blades attached to their respective hubs, was located at the northeast side of the main impact crater. The third propeller blade and the left main landing gear and tire were located in the main impact crater.

All airplane flight control surfaces were accounted for at the accident site. The airplane's parachute system was observed to have separated from its secured location by impact forces and was unfurled and located about 40 ft. northeast of the main wreckage and in line with the linear debris path; the parachute rocket motor had not discharged. There was no postcrash fire. The wreckage was recovered from the accident site to a secured storage facility for further examination.



Figure 1 - overhead view of debris field



Figure 2 - main wreckage site looking northeast

2.0 Follow-up examination notes

A follow-up examination of the airframe, engine and propeller was conducted at the facilities of Nu Venture Air Services, Dallas, Oregon on October 19, 2017. The results of the examinations revealed the following:

2.0.1 Airframe examination notes

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

The entire fuselage was destroyed by impact forces, having been extensively fragmented during the accident sequence.



Figure 3 - remnants of the aft fuselage area

The carry-through wing was destroyed by impact forces. The right wingtip, right aileron, and right flap were located within the debris field. The left aileron and left flap were also located in the debris field.



Figure 4 - right wing

The separated nose landing gear and both main landing gear were in the debris field.

The empennage was destroyed by impact forces. The vertical stabilizer and attached rudder were found in the debris field. The separated horizontal stabilizer was found in the debris field. The left and right elevators were found in the debris field.



Figure 5 - view of the empennage

The Multi-Functional Display (MFD) and the Primary Functional Display (PFD) were located in the debris field. The MFD and PFD were destroyed by impact forces. Several loose memory

boards, including the ACR module for the Avidyne PFD and the MFD's flash card were found in the debris field. The MFD's flash memory module was taken into possession by the NTSB IIC to be sent to the NTSB's Vehicle Recorder lab for further examination.

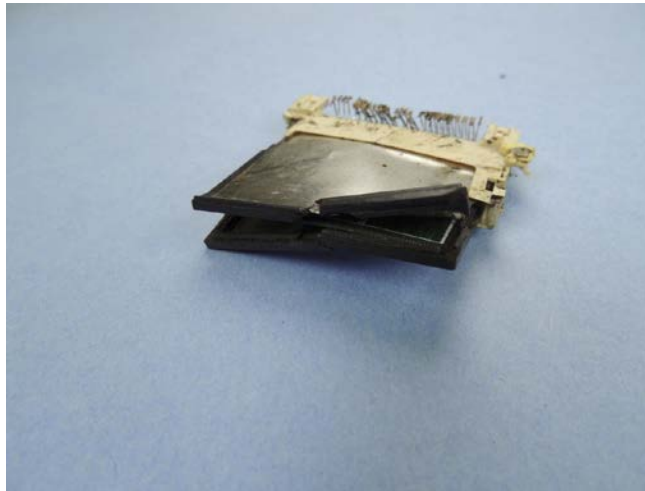


Figure 6 – side view of damaged CF memory card



Figure 7 - top view of damaged CF memory card

The CAPS parachute was found extracted from aircraft by impact forces. The parachute was unfurled and located about 40 feet northeast of the main wreckage. The parachute, suspension lines and risers were found draped over several trees along a linear debris path. Packing folds were present on the canopy. The slider was located near the base of the canopy.

The rocket motor, lanyards and D-Bag remained attached to the parachute. The rocket motor propellant was not expended. The incremental Bridle remained stowed in the Kevlar sheath.

The rocket motor was disassembled, and both propellant grains were removed. The propellant grains were taken into possession by an Oregon State Trooper to be disposed of by the Oregon

State Bomb squad. Additionally, the igniter was removed from the rocket motor and taken into possession by the Oregon State Trooper to be disposed of by the Oregon State Bomb squad.



Figure 8 - view of CAPS parachute

Subsequent to the recovery of the wreckage, the following was observed:

The major aircraft components that were identified included the propeller and hub assembly, upper engine cowl, engine and engine mount, nose landing gear, firewall and instrument panel, large pieces of the fuselage, pieces of the left cabin door and right cabin door, the baggage door, left and right crew seats, rear seats, large sections of upper and lower wing skin, the main wing spar, the left and right aft shear webs, the left and right main landing gear assemblies, left and right wingtips, left and right ailerons, left and right flaps, the horizontal stabilizer, left and right elevators, vertical stabilizer and rudder. The examined components exhibited impact damage. No anomalies were noted.

2.0.2 Engine and propeller examination notes

The following engine and propeller examination notes were provided to the NTSB IIC by a Continental Motors air safety investigator as a result of an onsite and postaccident examinations of the engine. The examinations were overseen by representatives from the NTSB, accompanied by representatives from the FAA.

The engine exhibited severe impact damage. Most of the engine accessories had fractured from their mounts and were located within the wreckage. The crankshaft propeller flange had separated and remained attached to the propeller hub. The propeller flange fracture surface exhibited 45° shear lips and radial cracking.



Figure 9 - view of engine post-recovery prior to examination

The magnetos were fractured from their mounts on the engine and were located within the aircraft wreckage. Both magnetos exhibited impact damage. One magneto drive turned freely by hand with impulse coupling engagement observed. The magneto produced spark at all six distribution towers. The other magneto would not turn by hand and was disassembled with no preimpact anomalies noted.



Figure 10 - view of airplanes magnetos

The spark plugs were impact damaged. The top spark plugs from cylinders 2,4,5 and 6 were removed and the electrodes exhibited light colored combustion deposits and the electrodes exhibited normal worn-out signatures when compared to the Champion Check-a-Plug chart.

The engine driven fuel pump exhibited impact damage and was partially dislodged from its mount. All fuel line fittings were fractured. The fuel pump drive coupling was broken. The mixture control turned freely by hand from stop to stop. The fuel pump was disassembled with no preimpact anomalies noted.



Figure 11 - engine driven fuel pump

The throttle body was fractured from the engine and located with the aircraft wreckage. The throttle body exhibited impact damage and the throttle control arm was fracture separated and not observed. The metering unit was separated and not observed.



Figure 12 - throttle body

The fuel manifold valve was separated from the engine and exhibited impact damage. The plunger and retaining nut were intact and secure. The fuel screen was mostly free of debris.

The starter had fracture separated from the starter adaptor and was located within the aircraft wreckage. The starter exhibited impact damage.

The alternator/generator number 1 and number 2 were fractured from the engine and exhibited impact damage.

The propeller governor was fractured from the engine and not observed.

The three-bladed propeller had separated from the engine. The crankshaft propeller flange remained attached to the propeller hub. One propeller blade was fractured near the hub and exhibited multi-direction scratches and large gouges in the leading and trailing edges. Another blade was relatively straight with multidirectional scratches and large gouges to the leading edge. A third blade was bent aft from the hub to the tip with a slight forward bend at the tip and exhibited chordwise scratches.



Figure 13 - damaged propeller