Aviation Investigation Final Report

Location:	Howard, Colorado	**Accident Number:**	DEN02GA102
Date & Time:	September 4, 2002, 06:56 Local	**Registration:**	N24GS
Aircraft:	Cessna A185F	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal, 1 Serious
Flight Conducted Under:	Part 91: General aviation - Air drop		

Analysis

the pilot was flying to a high altitude lake (elevation 11,300 feet) to aerially plant fish for the State of Colorado. The winds at the lower altitudes were calm. At 11,429 feet, data collected from an onboard GPS recorder, indicated that the airplane performed an abrupt 90 degree turn to the left, and impacted the adjacent ridge. Three other Colorado State pilots, flying the same mission in the area, reported wind shear and moderate turbulence from 11,500 to 12,500 feet. The density altitude was calculated to be 12,350 feet.

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 clearance of the terrain. Contributing factors were the clear air turbulent weather condition, and the high density altitude condition.

Findings

Occurrence #1: IN FLIGHT ENCOUNTER WITH WEATHER
Phase of Operation: MANEUVERING

Findings
1. (F) WEATHER CONDITION - TURBULENCE,CLEAR AIR

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: MANEUVERING

Findings
2. (C) CLEARANCE - NOT MAINTAINED - PILOT IN COMMAND
3. (F) WEATHER CONDITION - HIGH DENSITY ALTITUDE
4. TERRAIN CONDITION - MOUNTAINOUS/HILLY

Factual Information

HISTORY OF FLIGHT

September 4, 2002, at 0656 mountain daylight time, a Cessna A185F, N24GS, was destroyed when it impacted terrain while maneuvering near Howard, Colorado. The commercial pilot was fatally injured, and his passenger was seriously injured. The State of Colorado's Division of Wildlife (DOW), was operating the airplane under Title 14 CFR Part 91. Visual meteorological conditions prevailed for the local aerial fish stocking flight which originated approximately 20 minutes before the accident. No flight plan had been filed.

DOW employees said that the pilot was scheduled to do an aerial fish drop in Hunt Lake (elevation 11,300 feet). He departed Salida, Colorado (elevation 7,489 feet), with a fish hatchery employee as an operations observer. Flight data retrieved from an onboard GPS unit indicates that the airplane flew directly towards the lake and circled two times over Howard, Colorado, while gaining altitude. At 0652:30, the airplane was at 11,429 feet, and on a 250 degree true heading. At 0655:16, the airplane was on a 245 degree true heading and descending at approximately 360 feet per minute. The airplane impacted a ridge, approximately 90 degrees to its left, 5 to 10 seconds later. The last GPS location was approximately 350 feet from the impact site, and approximately 100 feet above it.

The injured passenger said that he remembered the flight towards Hunt Lake, but his last recollection was "Jim [the pilot] was pulling back real hard on the steering wheel." He said that when he regained consciousness he smelled fuel vapors, and he exited the airplane.

An emergency locator transmitter signal was received at approximately 0750 by other DOW pilots. The airplane was located approximately 1 hour later.

PERSONAL INFORMATION

The pilot took his last second class Federal Aviation Administration (FAA) flight medical examination on May 1, 2002, and at that time he reported on his application that he had 7,400 hours of flight experience, with 200 hours during the last 6 months. He renewed his flight instructor's certificate on August 21, 2001. The pilot had been flying for the State of Colorado DOW for approximately 20 years.

AIRCRAFT INFORMATION

The airplane was a single engine, propeller-driven, fixed gear, two seat airplane, which was manufactured by Cessna Aircraft Company in 1976. It was powered by a Continental IO-520-D, six cylinder, reciprocating, horizontally opposed, direct drive, air cooled, normally aspirated

(carbureted) engine with a maximum takeoff rating of 300 horsepower at sea level. At a density altitude of 12,350 feet, an engine manufactures representative said it would have been capable of producing approximately 165 horsepower. Aircraft maintenance records indicate that the last annual inspection was accomplished on April 5, 2002. The airplane's tachometer and maintenance records indicated that it had accumulated approximately 9,017 hours of flight time, and the engine had approximately 570 total hours since new.

The airplane was modified with an airborne fish stocking tank, that was divided into nine compartments. Each compartment had a 5 gallon capacity; the fish were fingerlings in size. The tank held approximately 400 pounds of water, and approximately 3 to 4 pounds of fish. Each compartment could be released individually, and the best release altitude was approximately 100 feet above the water.

METEOROLOGICAL INFORMATION

At 0650, the weather on Monarch Pass, Colorado, (elevation 12,030 feet) 280 degrees 22 nautical miles (nm) from the accident site, was as follows: wind 240 degrees at 19 knots; visibility 10 statute miles; clear of clouds; temperature 39 degrees Fahrenheit; dew point 34 degrees Fahrenheit; altimeter setting 30.73 inches. The other three DOW pilots reported that the wind was calm at Salida, Colorado, at the time of their takeoffs. The sunrise was 0636 on the morning of the accident.

The first of the four pilots to depart Salida reported that he encountered (approximately 15 nm from Hunts Lake) a sudden wind gust of approximately 20 to 25 knots at 240 degrees when he reached 12,500 feet. The other two pilots reported encountering occasional downdrafts and wind shears, with occasional moderate turbulence between 11,500 to 12,500 feet.

The density altitude was calculated to be 12,350 feet at the accident site.

WRECKAGE AND IMPACT INFORMATION

The airplane was found (N38 degrees, 23.63'; W105 degrees, 56.10'; elevation 11,662 feet) on a narrow high mountain ridge (elevation 11,662 feet). The ridge was oriented approximately 040-220 degrees, and was lightly forested with 20 to 70 foot conifers. The upper portions of several trees were found on the ground. A ground scar led to the airplane on a 130 degree heading. The airplane was found slightly inverted on its left side. The right wing's outboard 3 feet was separated, and the remainder of the wing was still in place. The left wing was nearly separated from the fuselage, and it was folded back and under the fuselage.

All of the airplane's major components were accounted for at the accident site. The flight control surfaces were all identified, and flight control cable continuity to all control surfaces could only be partially confirmed due to impact damage. The fuselage was bent and crushed, and its cabin volume was slightly reduced. The original shape of the cabin was not maintained. Both main landing gear had separated from fuselage; the tail wheel was still

attached to the empennage.

The engine (with all of its accessories) was in place, but attached to the fuselage by only cables and cowling material. Engine continuity was established through the drive train; thumb compression was noted on all of the cylinders, except the number four cylinder. This cylinder was removed and metal debris was found under the intake valve. The debris matched a 1.5 inch hole in the number four cylinder intake pipe. The propeller hub assembly remained attached to the crankshaft flange. Blade 1 was bent 140 degrees toward the cambered side. It was loose in the hub. Blade 2 was twisted toward the direction of rotation. Both blades exhibited scoring, and leading edge and tip damage.

No preimpact engine or airframe anomalies, which might have affected the airplane's performance, were identified. There was no evidence of postimpact fire.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot by the El Paso County Coroner, Colorado Springs, Colorado, for the Fremont County Coroner, Salida, Colorado.

The FAA's Civil Aeromedical Institute (CAMI) in Oklahoma City, Oklahoma, performed toxicology tests on the pilot. According to CAMI's report (#200200241001), the blood was tested for carbon monoxide, cyanide, and drugs, with negative results. The pilot's vitreous was tested for volatiles (ethanol) with negative results.

ADDITIONAL DATA

The airplane, including all components and logbooks, was released to a representative of the owner's insurance company on October 10, 2002.

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	57,Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 None	**Last FAA Medical Exam:**	May 1, 2002
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	7600 hours (Total, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N24GS
Model/Series:	A185F	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	185-03093
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	April 5, 2002 Annual	**Certified Max Gross Wt.:**	3350 lbs
Time Since Last Inspection:	111 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	9017 Hrs at time of accident	**Engine Manufacturer:**	Continental
ELT:	Installed, activated, aided in locating accident	**Engine Model/Series:**	IO-520-D
Registered Owner:	State of Colorado	**Rated Power:**	300 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	MYP,12030 ft msl	**Distance from Accident Site:**	22 Nautical Miles
Observation Time:	06:50 Local	**Direction from Accident Site:**	280°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	19 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	240°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.72 inches Hg	**Temperature/Dew Point:**	4°C / 1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Salida, CO (0V2)	**Type of Flight Plan Filed:**	Company VFR
Destination:		**Type of Clearance:**	Unknown
Departure Time:	07:41 Local	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Serious	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal, 1 Serious	**Latitude, Longitude:**	38.394443,-105.936668

Administrative Information

Investigator In Charge (IIC):	STRUHSAKER
Additional Participating Persons:	Brian Richardson; FAA FSDO; Denver, CO
Original Publish Date:	November 25, 2003
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=55658