Aviation Investigation Final Report

Location:	Alpine, Wyoming	**Accident Number:**	DEN06GA017
Date & Time:	November 18, 2005, 09:00 Local	**Registration:**	N9928H
Aircraft:	Cessna 182R	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Public aircraft		

Analysis

The civil air patrol (CAP) pilot was en route to administer a checkride to another CAP member. A state trooper had made a traffic stop on U.S. 26 at milepost 125. While he wrote the ticket, the violator saw an airplane fly past her position in a canyon following a river. She told the trooper what she had seen and said the airplane was below the highway and treetops. Shortly thereafter, the trooper located the inverted airplane submerged in the river. The trooper said there were no clouds in the sky and visibility was unlimited. Investigation revealed the airplane had struck and severed a 7/8-inch SSC (stainless steel conduit) EEIP (Extra Extra Improved Plow) braided cable. The cable was used by the United States Geological Survey (USGS) to monitor river flow and depth. The length of the cable (from support to support) was 324 feet, and had a "breaking strength" of 80,000 pounds. It was anchored in concrete blocks approximately 30 feet above the river's surface. Slack placed the cable about 25 feet above the surface at midspan (lowest point). Evidence indicates the airplane struck the cable at about the 107 foot mark. The cable broke about 6 feet from the anchor on the other side of the river.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's intentional low level flight/maneuver. A contributing factor was his exercising poor judgment.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: MANEUVERING

Findings
1. (C) LOW ALTITUDE FLIGHT/MANEUVER - INTENTIONAL - PILOT IN COMMAND
2. (F) JUDGMENT - POOR - PILOT IN COMMAND
3. OBJECT - WIRE,STATIC

Factual Information

HISTORY OF FLIGHT

On November 18, 2005, at 0900 mountain standard time, a Cessna 182R, N9928H, registered to and operated by the Civil Air Patrol (CAP) and piloted by a commercial pilot, was destroyed when it struck a steel cable and impacted the Snake River approximately 7 miles east of Alpine, Wyoming. Visual meteorological conditions prevailed at the time of the accident. The public use business flight was being conducted under the provisions of Title 14 Code of Federal Regulations Part 91 without a flight plan. The pilot was fatally injured. The flight originated at Jackson (JAC), Wyoming, at 0843.

According to the CAP, the pilot was en route to Afton (AFO), Wyoming, where he was to administer a checkride to another CAP member. A Wyoming state trooper had made a traffic stop on U.S. 26 at milepost 125. While he wrote the ticket, the violator saw an airplane fly past her position in the Grand Canyon of the Snake River. She told the trooper what she had seen and said the airplane was below the highway and treetops. Shortly thereafter, the trooper located the inverted airplane submerged in the river.

PERSONNEL (CREW) INFORMATION

The pilot, age 57, held a commercial pilot certificate, dated July 20, 2002, with airplane single/multiengine land, instrument, and glider ratings. He also held a flight instructor certificate with an airplane single-engine rating. His second-class airman medical certificate, dated April 27, 2005, contained the restriction, "Holder shall wear lenses that correct for distant vision and possess glasses that correct for near/intermediate vision while exercising the privileges of his airman certificate." The pilot was self-employed and owned Mountain Aviation Service (OUUA), an air taxi company with one airplane, a Cessna 206, listed on its FAA Part 135 air carrier certificate.

When the pilot made application for his most recent medical certificate, he estimated he had logged 4,700 total flight hours, and 60 hours in the last 6 months. According to FAA documents, the pilot's most recent FAA Part 135.293, and 135.299 checkrides was on February 3, 2005, taken in a Cessna 206U at Casper, Wyoming. Prior to that, he had a similar checkride on February 18, 2004, taken in a Cessna 172K at Grand Junction, Colorado.

The pilot joined the Civil Air Patrol (CAP) in October 2004. According to CAP records, the pilot had logged 69.8 hours in the last 12 months, 54.1 hours in the previous 6 moths, 38.5 hours in the previous 90 days, and 4.9 hours in the last 30 days (CAP flying only). He successfully completed the CAP National Check Pilot Standardization Course on October 22, 2005, and was

rated as a Senior Pilot.

AIRCRAFT INFORMATION

N9928H (s/n), a model 182R, was manufactured by the Cessna Aircraft Company in 1982. It was powered by a Continental O-470-U (s/n 466494), rated at 230 horsepower at 2,400 rpm, driving a McCauley 2-blade, all-metal, constant speed propeller (p/n P2043909-52).

The maintenance logbooks, reported to be on board the airplane, were not located or recovered. A tag, attached to the oil filter, was dated 10/03/05 with a time of 3,027.3 hours. According to the engine data plate, Western Skyways, Montrose, Colorado, did a major engine overhaul. The Wyoming Wing of the Civil Air Patrol located records indicating the engine "was remanufactured to 'Factory NEW Tolerances'" by Western Skyways, Montrose, Colorado, on June 22, 1995. At that time, the engine had accrued 2,675.0 hours total time. Records also indicated that the last annual inspection was accomplished on May 11, 2005, at a tachometer time of 2,919.0 hours, and a Hobbs meter time of 610.1 hours.

METEOROLOGICAL INFORMATION

N9928H departed JAC at 0843. Weather recorded at 0855 by the JAC Automated Weather Observation System (AWOS), located 29 n.m. north of the accident site, was as follows: Wind, calm; visibility, 10 s.m. (or greater); ceiling, 1,400 feet overcast; temperature, -09 degrees C.; dew point, -11 degrees C.; altimeter, 30.49 inches of Mercury.

According to the state trooper at the accident site, visual meteorological conditions prevailed. He said there were no clouds in the sky, and visibility was unlimited.

WRECKAGE AND IMPACT INFORMATION

The airplane was found inverted in the Snake River at a location of 43 degrees, 11'47" north latitude, and 110 degrees, 53'32" west longitude. About 780 feet downstream from the fuselage was the submerged left wing. The engine and propeller were found approximately 350 feet downstream. About 320 feet upstream from the fuselage was the submerged right wing.

When the airplane was recovered from the water, examination of the cockpit revealed the following:

RMI	243 degrees
Bearing	005 degrees

Tachometer	100 rpm
Recorder	3,042:69 hrs.
Manifold pressure	24 inches
Directional gyro	210 degrees
Bug	265 degrees
Altimeter	Destroyed
Kollsman window	30.49 inches 1032 mb
Throttle	Full forward
Mixture	1 inch aft
Propeller	Missing
Carburetor Heat	Closed
Cowl flaps	Closed
Fuel selector	Both
Navcom Radios	Digital
#1 VOR/LOC/ILS	255 degrees 2-1/2 dots right
#2 VOR/LOC	070 degrees 1 dot right
Airspeed indicator	40 KIAS
Master switch	On
Magnetos	Both
Avionics switch	On
Primer	In and locked
Circuit breakers	Closed
Alternator CB	Missing, housing intact

Examination of the north side of the riverbank revealed a stretched and severed steel braided cable. Near the top of the embankment was a destroyed gondola next to a United States Geological Survey (USGS) Streamflow Monitoring building. USGS was notified and their investigator arrived on-scene on November 29 (see USGS report, attached).

The wreckage was transported to Beegles Aircraft Service, Greeley, Colorado, where, on November 21, it was examined. The right wing had braided scratch marks across the top inboard surface, aft and to the right of the fuel filler. The lift strut was bent approximately 2 feet from the top. There was a chordwise tear, located about 3 feet inboard from the tip, and extending from the leading edge aft for about 8 inches. There was another spanwise tear in the skin, extending from the root to about 2 feet inboard from the tip. Both of these tears had control cables embedded. Both the flap and aileron were buckled. The left wing leading edge was crushed aft extending from the root outboard for about 6 feet. The lift strut was undamaged. The flap was buckled.

The top of the cabin was peeled aft to the baggage bin bulkhead, and the windshield was shattered. The dorsal fin and vertical stabilizer were ripped and torn. The rudder was folded to the left midspan. Both horizontal stabilizers were cut off about midspan.

The copilot seat was not recovered. The pilot's seat was separated from the floor. The attachment fittings were undamaged, but the track was broken in several places. The pilot's seatbelt and should harness had been cut.

The Dorne and Margolin type AF (s/n 51551) emergency locator transmitter (ELT) was in the AUTO position. The Artex battery had an expiration date of December 2005.

The engine was disassembled and examined. No anomalies were noted.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy (AL-05-01) and toxicological screen were performed on the pilot by Dr. William A. Fogarty, prosector, and FAA's Civil Aeromedical Institute (CAMI). According to the autopsy report, death was attributed a "fracture-dislocation of the cervical spine (C1 and C2) and complete avulsion of the spinal cord at the level of the medulla." According to CAMI's report, no carbon monoxide, cyanide, ethanol, or drugs were detected in blood and urine samples.

TESTS AND RESEARCH

According to the USGS, personnel ride the gondola out to the middle of the river, then lower instruments into the water to obtain various measurements, including flow rate and water depth. The cable, described as 7/8-inch IWRC (independent wire rope core) EEIP (Extra Extra Improved Plow), was galvanized. According to the manufacturer, Ace Industries, Inc., "EEIP

steel is a grade used where a high breaking strength is required. This grade typically provides a breaking strength a minimum of 10% higher than EIP steel and is found primarily as a standard grade for specialized wire rope. However, Extra Extra improved plow steel is available for standard wire ropes upon request." According to the USGS, the length of the cable (from support to support) was 324 feet, and had a "breaking strength" greater than 80,000 pounds (it must be at least 80,000 lbs to be rated as an EEIP cable). The actual breaking strength (or efficiency) of the cable at the connections where this cable broke was about 10 to 15% less. It was anchored in concrete blocks approximately 30 feet above the river's surface. Slack placed the cable about 25 feet above the surface at midspan (lowest point).

In his report, USGS's investigator wrote: "[The] plane hit the cable at about the 107 foot distance and probably slid along the cable for 30 feet or so, riding it into the river. The cable likely flipped the plane over backwards and the cable, under recoil, whipped around the wings and kinked with the plane speed as it went into the river." The cable broke about 6 feet from the anchor on the other side of the river.

ADDITIONAL INFORMATION

The wreckage was released to the Civil Air Patrol on November 21, 2005.

In addition to the Federal Aviation Administration, parties to the investigation included the Civil Air Patrol, the United States Air Force, the Cessna Aircraft Corporation, and Teledyne Continental Motors.

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	57,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Glider	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane single-engine	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	April 1, 2005
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	February 1, 2005
Flight Time:	4700 hours (Total, all aircraft), 39 hours (Last 90 days, all aircraft), 5 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N9928H
Model/Series:	182R	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	18268119
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:		**Certified Max Gross Wt.:**	3100 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	O-470-U
Registered Owner:	Civil Air Patrol, Inc.	**Rated Power:**	230 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:	JAC,6451 ft msl	**Distance from Accident Site:**	33 Nautical Miles
Observation Time:	08:55 Local	**Direction from Accident Site:**	350°
Lowest Cloud Condition:		**Visibility**	10 miles
Lowest Ceiling:	Overcast / 1400 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	0 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	0°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.48 inches Hg	**Temperature/Dew Point:**	-9°C / -11°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Jackson, WY (JAC)	**Type of Flight Plan Filed:**	None
Destination:	Afton, WY (AFO)	**Type of Clearance:**	None
Departure Time:	08:43 Local	**Type of Airspace:**	

Wreckage and Impact Information

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:**	43.205554,-110.898056

Administrative Information

Investigator In Charge (IIC):	Scott, Arnold
Additional Participating Persons:	David D Avey; FAA Flight Standards Field Office; Casper, WY Bruce J Hanson; FAA Flight Standards Field Office; Casper, WY Lyle Letteer; Civil Air Patrol, Inc.; Locust Grove, GA David Kirby; United States Air Force; Dobbins AFB, GA Michael L Koonce; Cessna Aircraft Corporation; Wichita, KS Josh Cawthra; Teledyne Continental Motors; Mobile, AL
Original Publish Date:	January 31, 2007
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=62840