Aviation Investigation Final Report

Location:	Baxter Pass, Colorado	**Accident Number:**	DEN08FA152
Date & Time:	September 7, 2008, 12:10 Local	**Registration:**	N26930
Aircraft:	GULFSTREAM AMERICAN CORP AA-5A	**Aircraft Damage:**	Destroyed
Defining Event:	Aerodynamic stall/spin	**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Aerial observation		

Analysis

Witness statements and recovered GPS data revealed that the commercial pilot and passenger were conducting aerial patrol of an underground pipeline. GPS data overlaid on a map of the pipeline route indicate that the pilot flew a track that was offset to the right of the pipeline, and then initiate a 90-degree left turn during the last 30 seconds of flight. During the offset and start of the turn, the airplane climbed 102 feet and decelerated from 95 miles per hour to 67 miles per hour. Density altitude was about 9,350 feet. Impact signatures and wreckage distribution indicated the airplane impacted terrain in a steep nose-low attitude, consistent with an aerodynamic stall. Examination of the wreckage showed no evidence of any pre-impact mechanical anomalies.

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 adequate airspeed during a turn, resulting in an unrecoverable aerodynamic stall.

Findings

Aircraft	Airspeed - Not attained/maintained
Personnel issues	Aircraft control - Pilot

Factual Information

History of Flight

Maneuvering-low-alt flying	Aerodynamic stall/spin (Defining event)
Uncontrolled descent	Collision with terr/obj (non-CFIT)

HISTORY OF FLIGHT

On September 7, 2008, at 1210 mountain daylight time, a Gulfstream American Corporation AA-5A Cheetah airplane, N26930 impacted terrain while conducting a pipeline patrol near Baxter Pass, Colorado. The commercial pilot and non-pilot rated passenger were fatally injured. The airplane was destroyed. The flight was being conducted under the provisions of Title 14 Code of Federal Regulations Part 91 without a flight plan. Visual meteorological conditions prevailed at the time of the accident.

The pilot departed Alamogordo, New Mexico the morning of the accident and landed at Canyonlands Field Airport (CNY), Utah. The pilot picked up an employee of Mid-American Pipeline Company at CNY and departed at approximately 1120. Witnesses observed an airplane matching N26930's description approximately 18 miles south of the accident site and 90 miles from CNY flying north at low altitude. The witnesses stated the weather was clear, temperature between 70 and 80 degrees Fahrenheit (F), and winds were calm. Passing motorists discovered the wreckage at approximately 1430.

PERSONNEL INFORMATION

The pilot held a commercial pilot certificate with ratings for airplane single-engine land and instrument airplane. His last Federal Aviation Administration (FAA) second-class medical was issued on May 22, 2008, with the limitation of "MUST WEAR CORRECTIVE LENSES."

The pilot's logbook was not located during the investigation. The pilot indicated 3,500 total flight hours and 700 flight hours during the past six months on his last Federal Aviation Administration (FAA) second-class medical application.

AIRCRAFT INFORMATION

The 1979-model Gulfstream American Corporation model AA-5A, serial number AA5A0817, was a low wing airplane, with a fixed landing gear, and was configured for four occupants. The airplane was powered by a direct drive, horizontally opposed, carbureted, air-cooled, four-cylinder engine. The engine was a Lycoming O-320-E2G, serial number L-48620-27A, rated at 180 horsepower, and was driving a two-bladed McCauley propeller. The airplane was designed with a cruise speed at 75 percent power of 128 knots and a stall speed (VSo) of 53 knots

The airplane and engine logbooks were not located during the investigation.

FLIGHT RECORDER INFORMATION

A Garmin GPSMap 396 was recovered from the airplane wreckage. It was sent to the National Transportation Safety Board headquarters for download. One hundred sixty one (161) user defined waypoints, two (2) user defined routes, and seventeen (17) tracklogs were downloaded from the GPSMAP 396. Five (5) tracklogs were recorded on the date of the accident. Data corresponding to the last tracklog began at 1121:46 with a latitude/longitude position fix nearby to CNY. The following are the last five waypoints recorded on that tracklog:

Time	GPS Altitude	Speed	Heading	Coordinates
12:09:18	6736 ft	93 mph	54° true	N39 33.514 W108 55.145
12:09:30	6739 ft	95 mph	67° true	N39 33.672 W108 54.865
12:09:36	6775 ft	80 mph	21° true	N39 33.725 W108 54.700
12:09:45	6838 ft	67 mph	283° true	N39 33.888 W108 54.619
12:09:52	6647 ft			N39 33.913 W108 54.762

The last waypoint at 12:09:52 did not contain speed or heading.

The above GPS data overlaid on a map of the pipeline route showed the gps track diverging to the right of the pipeline and turning left prior to the pipeline making a 90 degree left turn.

WRECKAGE AND IMPACT INFORMATION

The airplane impacted terrain on the edge of 201 Road, about two miles southeast of Baxter Pass. The terrain was low brush and grass areas in a valley. Terrain rose moderately from the valley floor and the point of impact was near a split in the valley where the pipeline being followed made an almost 90 degree turn to the west.

The airplane wreckage was contained in an area approximately 100 feet wide and 200 feet long. There was a ground scar indicative of an initial impact point on the northern end of the debris field aligned on a 150 degree heading. The propeller was located on the southern end of the ground scar with one blade embedded in the ground. The fuselage was located ten feet west of the impact scar and resting against the side of a six foot by six foot metal tubing fence surrounding a wooden pole with electrical supply boxes attached to it. The right horizontal stabilizer was resting on the north side of the fence with leading edge damage. The electrical supply boxes were not damaged by the airplane. The left wing was separated from the fuselage in three pieces and located near the impact scar on the east side. The right wing was separated from the fuselage and located south of the impact point 20 feet. The fuselage was shaped into a backwards "L" shape with the engine aligned easterly and the tail aligned southerly. The engine and forward cockpit areas showed signs of significant impact damage.

TEST AND RESEARCH

The engine was examined at an off site location on October 21, 2008. The top spark plugs were removed and the cylinders were Borescope inspected. No anomalies were noted. The spark plugs appeared normal as compared to the Champion aviation check a plug chart AV-27. The crankshaft was rotated using a vacuumed pump drive adapter and thumb compression was observed at all cylinders. Engine drive train continuity was established throughout the engine. The oil pickup and pressure screens were both found free of debris. The left magneto had broken free from the flange and was not available at the exam. The right magneto was still attached to the engine with the back portion broken away. The carburetor was examined and no external damage or leaking was noted. The fuel screen was found free of debris. The fuel pump was found broken free at the flange. The propeller was broken off with the crankshaft flange. One blade was bent forward and the other blade was twisted and bent aft. Both blades had leading edge polishing and cord wise scratching. No evidence of an in-flight engine failure was found.

MEDICAL AND PATHOLOGICAL INFORMATION

The Pathology Group, P.C., located in Grand Junction, Colorado, as authorized by the Garfield County Coroners Office, performed an autopsy on the pilot on September 8, 2008. The cause of death was determined to be multiple blunt force injuries and the manner of death was determined to be an accident.

The FAA, Toxicology Accident Research Laboratory, located in Oklahoma City, Oklahoma, conducted toxicological testing on the pilot. Toxicological tests were negative for carbon monoxide, cyanide, ethanol, and drugs.

ADDITIONAL INFORMATION

Density altitude for the accident location was computed at 9,352 feet using the following assumptions: altitude 6,750 feet, temperature 75 degrees F, dew point 29 degrees F, altimeter 29.92.

The airplane (N26930) was privately owned by the pilot and two other individuals, but was being operated by L H Underwood Aerial Patrol, Inc at the time of the accident, as determined by the FAA.

The Chief Executive Officer (CEO) for Underwood Aerial Patrol, Inc. provided the following email statement to investigators in regard to the pilot and the use of the pilot's personal airplane:

"We last spoke on the evening of September 4th and we discussed his plans for the upcoming week. He was going to leave from West Houston airport (KIWS) in Underwood's Cardinal 177 which was hangered there. He had the combination to the lock and the keys to the plane. He

stated he would be flying out west sometime on Sunday (to transition the airplane) so that he could meet with a pipeline company representative on the following Monday morning and fly the line with him.

Underwood's policies are that flights are conducted Monday [thru] Thursday with Friday a make-up / weather day (we can transition on weekends if necessary and with prior approval). If requested by one of our clients, and Underwood's management approves, we will allow flights on the weekend. This would be listed as specials. We only use company aircraft that Underwood has insured and knows when, where and by whom the maintenance has been performed. All Pilots call into Underwood's office prior to each flight and call again to check out once they are through for the day.

[The pilot] failed to do any of the above. He left on a Saturday instead of Sunday as we had last discussed. He did not phone our office to check in and let us know he was leaving. He left in a plane other than Underwood's aircraft."

The following statement was provided by the pilot's wife:

"On Saturday, September 6th 2008, [the pilot] talked to [Underwood Aerial Patrol CEO] and I heard their conversation. [The pilot] detailed for [Underwood Aerial Patrol CEO] the conversation he had with [the passenger] about flying on Sunday, September 7, 2008. [Underwood Aerial Patrol CEO] was aware [the pilot] was planning to fly on Sunday and using the Grumman Cheetah."

Following his conversation with [Underwood Aerial Patrol CEO] on September 6th 2008, [the pilot] flew our Cheetah plane from Houston to Alamogordo, New Mexico.

On Sunday, September 7, [the pilot] called me at 11:42 a.m. (CST). He said he was in Moab, Utah to pick up [the passenger] with Enterprise Products. He said he would call me when they landed in Dove Creek, Colorado. He never called."

The following statement was provided by the passenger's wife:

"My understanding of this whole scheduled trip was that they were originally supposed to start flying the pipeline on Friday, September 5th, but that the plane that was scheduled had some mechanical problems. So the pilot had to go back to Texas and get a different plane. They (my husband and Enterprise) wanted to get going as soon as possible because they were almost out of compliance with DOT because they had switched to a different aerial patrol company. I was not aware that the plane was not one of the aerial company's planes and [my husband] had not mentioned that to me so I doubt he knew before at least Sunday morning when he was picked up."

Requests to the L H Underwood Aerial Patrol CEO to complete and return a NTSB Form 6120.1 were unanswered.

Pilot Information

Certificate:	Commercial	**Age:**	60,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	May 1, 2008
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	GULFSTREAM AMERICAN CORP	**Registration:**	N26930
Model/Series:	AA-5A	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal; Utility	**Serial Number:**	AA5A0817
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	Unknown	**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	LYCOMING
ELT:	Installed, not activated	**Engine Model/Series:**	0-320 SERIES
Registered Owner:	LANDRY CHARLES R	**Rated Power:**	180 Horsepower
Operator:	Underwood Aerial Patrol Inc.	**Operating Certificate(s) Held:**	None
Operator Does Business As:	Underwood Aerial Patrol	**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	
Observation Facility, Elevation:		**Distance from Accident Site:**	
Observation Time:	12:00 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:		**Temperature/Dew Point:**	
Precipitation and Obscuration:			
Departure Point:	MOAB, UT (CNY)	**Type of Flight Plan Filed:**	None
Destination:	ROCK SPRINGS, WY (RKS)	**Type of Clearance:**	None
Departure Time:	11:20 Local	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	39.564723,-108.913055

Administrative Information

Investigator In Charge (IIC):	Baker, Daniel
Additional Participating Persons:	Eric McRae; FAA; Salt Lake City, UT
Original Publish Date:	May 12, 2009
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=68895