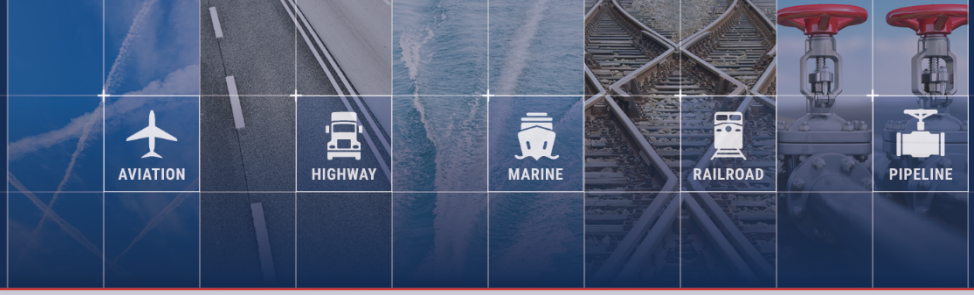

Aviation Investigation Final Report

Location:	Sahuarita, Arizona	**Accident Number:**	LAX08FA267
Date & Time:	August 14, 2008, 14:59 Local	**Registration:**	N4887R
Aircraft:	Cessna TR182	**Aircraft Damage:**	Destroyed
Defining Event:	Collision with terr/obj (non-CFIT)	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

Family members reported that the pilot was overdue on a cross-country flight to visit a friend. The wreckage was discovered the next day. The main wreckage was found at the base of a vertical bluff with portions of the wings about halfway up on the bluff face. Radar data indicated that the airplane circled in the accident area at low altitude. The last radar return, which was in the immediate vicinity of the bluff, indicated an altitude that was lower than the elevation of the top of the bluff. Investigators found no anomalies with the airframe or engine that would have precluded normal operation.

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 from mountainous terrain while maneuvering at low altitude for undetermined reasons.

Findings

Aircraft	Altitude - Not attained/maintained
Environmental issues	Mountainous/hilly terrain - Contributed to outcome
Personnel issues	Aircraft control - Pilot

Factual Information

History of Flight

Maneuvering-low-alt flying	Collision with terr/obj (non-CFIT) (Defining event)

HISTORY OF FLIGHT

On August 14, 2008, about 1459 mountain standard time, a Cessna TR182, N4887R, collided with terrain near Sahuarita, Arizona. Farmers Investment Company was operating the airplane under the provisions of 14 Code of Federal Regulations (CFR) Part 91. The certificated private pilot was killed; impact forces destroyed the airplane. The cross-country personal flight departed the FICO Air Strip in San Simon, Arizona, about 1400, with a planned destination of Green Valley, Arizona. Visual meteorological conditions prevailed, and no flight plan had been filed.

The pilot was flying to Green Valley to visit a friend. Family members alerted the Federal Aviation Administration (FAA) that he was overdue, and the FAA issued an alert notice (ALNOT).

The Civil Air Patrol (CAP) initiated a search, and discovered the wreckage on August 15, 2008.

A review of recorded radar data indicated a target 5 miles south of San Simon that was at a mode C reported altitude of 4,700 feet at 1411. The target maintained a west-southwest track, and climbed to 6,500 feet. Over Benson, Arizona, the target descended to 6,300 feet.

About 16 miles west of Benson, the target began a gradual descent over the next 16 miles to 5,600 feet. A gentle 3-mile diameter arc turn was then made to the south. A right and then left turn was made doing another 3-mile diameter arc to the south while maintaining 5,600 feet. The target then began a climbing left turn to 6,100 feet; the turn was 360 degrees, about 3 miles in diameter, and it descended to 5,900 feet during the last quarter turn.

The target continued turning to a northerly track. Peak altitude was 5,900 feet as it tracked north; it was at 5,600 feet at its northern most point, which was near the origin of the first arc to the south. The target turned left, and completed about 180 degrees of turn, on a path about the same as the first arc, when the last identified contact occurred. The last target at 1458:49 was at a mode C altitude of 5,500 feet, and was about 0.1 mi south-southwest of the accident site.

PERSONNEL INFORMATION

A review of Federal Aviation Administration (FAA) airman records revealed that the 63-year-old

pilot held a private pilot certificate with a rating for airplane single-engine land. The pilot held a third-class medical certificate issued on December 15, 2006. It had the limitations that the pilot must wear corrective lenses.

No personal flight records were located for the pilot. The pilot reported on his medical application that he had a total time of 4,000 hours with 50 hours logged in the previous 6 months.

AIRCRAFT INFORMATION

The airplane was a Cessna TR182, serial number R18200621. The operator reported that the airplane had a total airframe time of 3,411 hours at the last annual inspection on November 6, 2007.

The engine was a Textron Lycoming O-540-L3C5D, serial number L-20491-40A. Total time was 3,545 hours, and time since major overhaul was 1,432 hours.

WRECKAGE AND IMPACT INFORMATION

The main wreckage consisted of the engine, fuselage, an outboard section of the left wing, the left wing strut, left aileron, and empennage. It was at the base of the Hart's Butte rock bluff that was several hundred feet high. The remainder of the left wing and the right wing remained about halfway up on the bluff face.

The United States Geological Survey Geographic Names Information System elevation dataset indicates that the elevation of Hart's Butte is 6,106 feet.

MEDICAL AND PATHOLOGICAL INFORMATION

The Pima County Medical Examiner's Office conducted an autopsy, and ruled the cause of death as blunt force trauma.

The FAA Forensic Toxicology Research Team, Oklahoma City, Oklahoma, performed toxicological testing of specimens of the pilot. They did not perform tests for carbon monoxide or cyanide.

The report contained the following findings for tested drugs: diphenhydramine detected in muscle.

The report contained the following findings for volatiles: 92 (mg/dL, mg/hg) ethanol detected in muscle; 4 (mg/dL, mg/hg) N-propanol detected in muscle.

TESTS AND RESEARCH

Investigators examined the wreckage at Air Transport, Phoenix, Arizona, on August 19, 2008.

Airframe

The cabin and fuselage sustained severe crush damage. The top of the vertical stabilizer exhibited aft crush damage that knocked the rotating beacon loose and shattered the glass cover.

The right horizontal stabilizer sustained more damage than the left horizontal stabilizer. The left elevator remained attached to the left horizontal stabilizer. The outboard third of the left elevator exhibited trailing edge buckling. The right elevator with the trim tab remained attached to the right horizontal stabilizer. Both of them bent up about 10 degrees near the midpoint, and this angle progressed to about 90 degrees up at the outboard edge. Both exhibited aft crush damage.

Control continuity was established from the elevators to the control yoke, and from the rudder to the rudder pedals. The aileron cables were connected to the yoke, and traced to the center of the crumpled fuselage center section. The aileron cables separated in a broomstraw pattern.

Engine

During the engine inspection, the spark plugs were removed. Most of the spark plug bodies that were recovered were bent or exhibited crush damage. Their electrodes were free of mechanical deformation, and the gaps were similar. The spark plug electrodes were circular and gray, which corresponded to normal operation according to the Champion Aviation Check-A-Plug AV-27 Chart.

The engine sustained impact damage. Cylinder number one and its piston, along with the associated section of the crankcase, fragmented and separated. The crankshaft fractured and separated along a jagged plane forward of the number one connecting rod and aft of the number two connecting rod. The connecting rods for cylinders number one and two were bent and twisted. The counterweights moved freely on their journals. The camshaft was bent up several degrees, and the lobes were unremarkable.

Both magnetos separated and fragmented; they could not be tested.

The turbocharger separated. The turbocharger vanes rotated freely when manually rotated, and the vanes were loose on the shaft. The inside of the housing exhibited rotational scoring, and several blades exhibited gouges at the tip.

The carburetor separated from the engine and fragmented. The engine driven fuel pump separated from the engine and fragmented.

The oil sump screen was clean. The oil filter was crushed.

Propeller

The propeller hub fragmented, which liberated the blades. A portion of the hub remained attached to the crankshaft flange, which separated from the engine. One blade exhibited leading edge gouges, chordwise striations, and trailing edge buckling. The blade twisted toward the low pitch, high revolutions per minute (rpm) position. The tip separated along a jagged plane that was angular to the span.

The spinner was crushed flat in a concentric circle pattern.

Pilot Information

Certificate:	Private	**Age:**	63,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):		**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 Without waivers/limitations	**Last FAA Medical Exam:**	December 30, 2006
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	November 16, 2007
Flight Time:	4000 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N4887R
Model/Series:	TR182	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	R18200621
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	November 6, 2007 Annual	**Certified Max Gross Wt.:**	3100 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	3411 Hrs as of last inspection	**Engine Manufacturer:**	Lycoming
ELT:	C91 installed, not activated	**Engine Model/Series:**	O-540-L3C5D
Registered Owner:	Farmers Investment Company	**Rated Power:**	235 Horsepower
Operator:	Farmers Investment Company	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	TUS	**Distance from Accident Site:**	
Observation Time:	14:53 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:	29.95 inches Hg	**Temperature/Dew Point:**	33°C / 12°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	San Simon, AZ	**Type of Flight Plan Filed:**	None
Destination:	Sahuarita, AZ (35AZ)	**Type of Clearance:**	None
Departure Time:	14:00 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:**	31.847221,-110.763336

Administrative Information

Investigator In Charge (IIC):	Plagens, Howard
Additional Participating Persons:	Orlando Diaz; Federal Aviation Administration FSDO; Scottsdale, AZ Emile Lohman; Cessna Aircraft Company; Wichita, KS Mike Childers; Textron Lycoming; Williamsport, PA
Original Publish Date:	December 29, 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=68720