Aviation Investigation Final Report

Location:	Garryowen, Montana	**Accident Number:**	SEA03LA040
Date & Time:	February 20, 2003, 12:23 Local	**Registration:**	N24MF
Aircraft:	Piper PA-22-150	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 Fatal, 1 Serious
Flight Conducted Under:	Part 91: General aviation - Other work use		

Analysis

The pilot and passenger departed on a coyote predation flight in the Piper PA-22-150. After shooting one coyote the pilot observed a second coyote approximately 400 yards in front of the aircraft. The pilot made a low altitude pass in a right slip at this second coyote during which the passenger shot and missed, and the coyote dodged to the left. The passenger reported expecting the pilot to turn left, but the aircraft turned right and then impacted the ground. A Garmin GPSMAP295 unit on board at the time of the accident provided latitude, longitude, time and elevation data from the time of takeoff up until the accident. The data showed the aircraft engaging in frequent low altitude turning maneuvers for several minutes before the last recorded target. Post-crash examination revealed extensive damage to the right wing and separation of the right wing from the fuselage. Damage to the left wing was confined to the leading edge outboard section. A moderate upward crush angle from the firewall to the propeller placed the aircraft in a nose low, right wing down attitude upon ground impact. An FAA inspector on site found no evidence of mechanical or powerplant malfunction. Both occupants survived the crash however the pilot expired four days later due to injuries.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot in command's allowing the aircraft to inadvertently enter into a stall condition at low altitude while maneuvering. A contributing factor was the pilot's intentional low altitude maneuvering.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: MANEUVERING

Findings
1. (C) AIRSPEED - NOT MAINTAINED - PILOT IN COMMAND
2. STALL - INADVERTENT - PILOT IN COMMAND
3. (F) LOW ALTITUDE FLIGHT/MANEUVER - INTENTIONAL - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
4. TERRAIN CONDITION - GROUND

Factual Information

On February 20, 2003, at 1223 mountain standard time, a Piper PA-22-150, N24MF, registered to/and being operated/flown by the certificated private pilot/owner sustained substantial damage during a loss of control and in flight collision with terrain approximately five nautical miles south south-west of Garryowen, Montana. Both the pilot and passenger sustained serious injuries and the pilot, who never regained consciousness, succumbed to injuries four days later. No post-mortem or toxicological examination was conducted on the pilot. Visual meteorological conditions existed at the time of the accident and the Billings, Montana; aviation surface weather observation (located 50 nautical miles north-northwest of the crash site) reported 10 miles visibility with a few clouds at 12,000 feet and winds from 210 degrees magnetic at 15 knots at 1156 local. The flight, which was engaged in coyote predation for local farmers, was operated under 14CFR91, and originated from Hardin, Montana, at 1200 local on the morning of the accident.

The passenger, seated in the front right seat, was interviewed by an inspector from the Federal Aviation Administration's (FAA) Helena Flight Standards District Office (FSDO) and provided a brief written statement. He reported that he and the pilot departed Hardin, Montana, to shoot coyotes for some farmers. After shooting a coyote, and while preparing to land, the pilot noted another coyote approximately 400 yards in front of the aircraft. The pilot abandoned the landing and "...made a pass at this coyote at about 180 feet..." and "...again, he put the aircraft into a right slip so I could shoot the coyote...." The passenger fired but missed the coyote as it dodged left. He reported that he expected the pilot to turn left but the aircraft turned right and immediately thereafter the aircraft impacted the ground (refer to witness statement).

A Garmin GPSMAP295 unit, one of three GPS units retrieved from the aircraft, was determined to be in good condition and shipped to the manufacturer where a data extraction was accomplished. The data extraction revealed a series of data points commencing at 1200 local at a latitude and longitude consistent with the Hardin airport, Hardin, Montana (refer to ATTACHMENT GPS-I). A total of 208 targets consisting of latitude, longitude, time and altitude, were recorded in the unit's non-volatile memory and the last recorded target was at 45 degrees 28.900 minutes north latitude, 107 degrees 29.388 minutes west longitude at 1223 local. The altitude of this target was recorded as 3,448 feet above mean sea level (MSL).

The manufacturer provided a track plot of the targets superimposed on a topographic chart. The track plot showed the aircraft engaged in frequent turning maneuvers for several minutes before the last recorded target (refer to ATTACHMENT TP-I). The lowest altitude recorded during this time was 3,377 feet MSL and the highest was 3,478 feet MSL. The approximate elevation of terrain 1,500 feet east of the ground impact site was 3,445 feet MSL.

An inspector from the FAA Helena FSDO conducted the onsite examination of the wreckage

the day following the accident. He reported that the aircraft was observed upright with its longitudinal axis orient approximately north-south (nose pointed north toward gradually upsloping terrain). Both main landing gear had broken off and the right wing exhibited extensive aftward bending and compressive deformation and was broken free at the fuselage attach point. The left wing displayed leading edge compressive deformation outboard in the vicinity of the strut-to-wing attach point and minimal leading edge damage inboard. The empennage and vertical/horizontal flight and control surfaces sustained minimal damage and there was no fire. The flap on the left wing was observed in the retracted position. Both propeller blades displayed "S" bending deformation and the spinner was crushed aft. A significant upward crush angle was noted progressing from the firewall area slanting upward through the area of the prop spinner and the deformation was more substantial on the right side than the left (refer to attached photographs). The inspector found no evidence of control or powerplant malfunction.

No pilot logs were recovered during the course of the investigation and the pilot's overall flight time of 900 hours was derived from his reported total time at his most recent (April 5, 2001) second class medical.

No airframe/powerplant logs were recovered during the course of the investigation and the aircraft's total flight time of 2,355 hours was derived from the aircraft's tachometer at the accident site.

The retained GPS units were returned to Mr. Mac Plymale via Federal Express on March 18, 2003 (refer to ATTACHMENT FX-I).

Pilot Information

Certificate:	Private	**Age:**	33,Male
Airplane Rating(s):	Single-engine land; Single-engine sea	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	April 5, 2001
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	900 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N24MF
Model/Series:	PA-22-150	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	22-3554
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	Unknown	**Certified Max Gross Wt.:**	1650 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	2355 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	Installed, activated, aided in locating accident	**Engine Model/Series:**	O-360
Registered Owner:	Puente, Jeff C.	**Rated Power:**	180 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:	BIL,3649 ft msl	**Distance from Accident Site:**	49 Nautical Miles
Observation Time:	11:56 Local	**Direction from Accident Site:**	280°
Lowest Cloud Condition:	Few / 12000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	15 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	210°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.84 inches Hg	**Temperature/Dew Point:**	6°C / -8°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Hardin, MT (F02)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	12:00 Local	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Serious	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal, 1 Serious	**Latitude, Longitude:**	45.481666,-107.489723

Administrative Information

Investigator In Charge (IIC):	McCreary, Steven
Additional Participating Persons:	Earl Webb; FAA FSDO; Helena, MT
Original Publish Date:	December 30, 2003
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=56518

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