Aviation Investigation Final Report

Location:	RUIDOSO, New Mexico	**Accident Number:**	DEN99FA066
Date & Time:	April 23, 1999, 10:23 Local	**Registration:**	N48MD
Aircraft:	Smith, Ted Aerostar 601P	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot departed on runway 06 with zero degrees of flaps. A witness said that she noticed that the airplane appeared to wobble and shudder, and immediately went into a steep right bank turn right after takeoff. The airplane then went into the clouds which were 200 to 400 feet agl. Radar data indicated that the airplane made several 90 degree turns prior to impacting the mountainous terrain 2.55 nm from the departure end of the runway. The pilot normally used 20 degrees of flaps for takeoff. A test pilot said that the airplane handles significantly different during takeoff if zero degrees of flaps are used verses 20 degrees of flaps. The upper cabin's entry door was found, with the locking handle and locking pins, in the closed position. No preimpact engine or airframe anomalies, which might have affected the airplane's performance, were identified.

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 aircraft control for undetermined reason. A factor was the low ceiling IMC weather condition.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings

1. (C) REASON FOR OCCURRENCE UNDETERMINED
2. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
3. (F) WEATHER CONDITION - LOW CEILING

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

Findings
4. TERRAIN CONDITION - MOUNTAINOUS/HILLY
5. TERRAIN CONDITION - ROCK(S)/BOULDER(S)

Factual Information

HISTORY OF FLIGHT

On April 23, 1999, at 1023 mountain daylight time, a Smith 601P (Aerostar), N48MD, was destroyed when it impacted terrain while maneuvering near Sierra Blanca Regional Airport, Ruidoso, New Mexico. The instrument rated private pilot and his passenger were fatally injured. The airplane was being operated by the pilot under Title 14 CFR Part 91. Instrument meteorological conditions prevailed for the personal cross-country flight which originated approximately 3 minutes before the accident. An IFR flight plan had been filed and a departure clearance had been received by the pilot.

An employee of the pilot reported that the pilot and his wife departed Addison Airport, Dallas, Texas, at approximately 1500 on April 22, 1999. The pilot's flight logbook indicated that they flew directly to Ruidoso, New Mexico, where they owned a home.

On the morning of the accident, the Emergency Response Chief at the airport said that he fueled N48MD with 95.4 gallons of 100LL at approximately 0700. He said that he observed the pilot preparing the airplane for flight at approximately 0930. An employee of the Fixed Based Operator (FBO) documented that the pilot taxied to the end of runway 06 at 0959. The pilot called the FBO at 1010 asking for assistance in getting his IFR clearance; he stated that he had tried several frequencies and had been unable to reach anyone. The first officer of a Continental Airlines flight passing overhead subsequently relayed the pilot's IFR clearance to him from Albuquerque Air Route Traffic Control Center. The first officer said that "the pilot seemed anxious and in a hurry to get in the air." At 1019, the first officer told Albuquerque Center that N48MD was on "takeoff roll."

Two pilot/mechanics, who were standing on the ramp, observed N48MD taxing southwest bound and then park (with the engines running) for 15 to 20 minutes. They watched the airplane accelerate down runway 06, and they both remembered that the airplane's "engines sounded good and sounded synchronized." One of these witnesses reported that he "thought that the Aerostar's takeoff roll was long and that rotation began at about 3,500 feet down the runway." He further stated that he thought the airplane was in the air at 4,500 feet down the runway. The other witness stated that he "didn't remember seeing the flaps down, and I normally remember that sort of thing."

A witness standing in the FBO watching N48MD takeoff thought that he lifted off the ground between 6,000 and 7,000 feet down the runway. She further noticed that N48MD appeared to "wobble and shudder," and immediately went into a steep right bank turn. She said that she could see the airplane's whole profile, and then he disappeared into the clouds. She later demonstrated to her husband what she saw, and he estimated that it was a 45 to 55 degree

bank turn.

Radar data indicates that at 1022, N48MD was approximately 2.5 nm southeast of the departure end of runway 06 on a heading of 090 degrees (see attached radar study). The airplane turned southbound and then northbound before impacting terrain at 1023.

PERSONNEL INFORMATION

The pilot's flight logbook indicated that he had a total of 3,681 hours of flight experience, of which approximately 597 of those hours were in N48MD. The pilot's flight instructor said that the pilot told him that he had lost his first flight logbook which contained an additional estimated 1,000 hours of single engine flight time. No documentation was located to verify this. The pilot's flight logbook indicated that he had flown approximately 109 hours in the previous 4 months; and 49 of those hours were logged as instrument flight.

The pilot's flight instructor reported that the pilot had orthoscopic surgery on his right knee approximately two days before the accident. He further stated that the pilot preflighted his airplane, in Dallas, without a cane or any apparent walking difficulties.

The pilot was scheduled to be the best man in a wedding for one of his employees in Las Vegas, Nevada, late in the afternoon on the day of the accident.

AIRCRAFT INFORMATION

The airplane was a twin engine, propeller-driven, pressurized airplane, which was manufactured in 1978 by Smith Aerostar Aircraft Corporation. It was certificated for a maximum gross weight of 6,000 pounds. The airplane normally seated six, but N48MD had two seats removed for added passenger leg room. The airplane was powered by two Textron Lycoming IO-540-S1A5 turbo-normalized, six cylinder, reciprocating, horizontally opposed, fuel injected engines which had a maximum takeoff rating of 290 horsepower. At the time of the accident, the aircraft records and the pilot's personal flight logbook indicated that the airframe had accumulated approximately 4,526 hours.

The airplane was designed and built without a stall warning system on it. The Pilot Owner's Handbook, for N48MD, indicates that takeoffs may be made with zero degrees, 10 degrees, or 20 degrees of flaps. The pilot's flight instructor stated the pilot "normally used 20 degrees of flaps for his takeoffs."

The airplane's maintenance records indicate that Airworthiness Directive 89-03-04 (to prevent the upper cabin door from opening in flight) had been complied with. The airplane received its FAA required annual inspection on November 26, 1998. Maintenance records indicated that on February 21, 1999, the right engine's outboard Ray-Jay turbocharger had been removed, repaired, and reinstalled on the engine.

METEOROLOGICAL INFORMATION

The Sierra Blanca Regional Airport has an automated weather observing system (AWOS) which was reporting the following weather at 1010: wind 080 degrees for 9 knots, visibility 10 sm, cloud condition 900 feet overcast, temperature 48 degrees F., dew point 46 degrees F., altimeter 30.12 inches of mercury, density altitude 7,516 feet. A witness, who landed a King Air on runway 24 approximately 10 minutes prior to N48MD's departure, reported that the cloud tops were approximately 11,400 feet and he experienced no turbulence during his localizer approach to runway 24. He further reported that he descended to approach minimums (7,200 feet), but was still in instrument meteorological conditions. He said that at 4 nm, or 2.5 nm from the approach end of runway 24, he broke out of the clouds and landed. The two witnesses, who were standing on the ramp, stated that N48MD departed when "the weather conditions were the worst for the day." They further stated that when N48MD was departing, "the clouds were rolling in with bottoms from 200 to 400 feet agl."

The weather data showed that the sky was clear of clouds until 0910 when scattered conditions at 1100 feet were reported. At 0930, the cloud condition was reported to be broken at 1100 feet, and at 1010, the cloud condition was overcast at 900 feet.

AERODROME INFORMATION

Sierra Blanca Regional (8,101 feet by 100 feet; elevation 6,811 feet) is a non-controlled airport which has a single asphalt runway, 06-24. Runway 06 slopes down hill 0.7%.

WRECKAGE AND IMPACT INFORMATION

The airplane was found on a rocky hillside (elevation 6,530 feet) approximately 2.55 nm southeast from the departure end of runway 06 (N33 degrees 27.03 minutes, W105 degrees 29.00 minutes). The hillside was covered with scrub cedar trees which were 8 to 15 feet tall. The missing branches from one cedar tree suggest that the airplane impacted the ground in a 25 degree left bank, nose down 25 to 30 degrees. A ground scar, airplane wreckage debris, and scattered personal effects were on a longitudinal track through the trees on a 345 degree orientation.

All major components of the airplane were accounted for at the accident scene. The flight control surfaces were all identified, but control cable continuity could not be established due to impact damage and postimpact fire. Both engine's crankshafts rotated by hand, and thumb compression was observed on all cylinders except the #2 cylinder in both engines. Valve continuity was visually confirmed on both engines, and all accessory gears rotated. All 6 propeller blades had leading edge damage and trailing edge damage, and they exhibited cordwise striations. They were all twisted to some degree, and 4 of the blades had their tips broken off.

The upper cabin's entry door was found, with the locking handle and locking pins, in the closed

position. No preimpact engine or airframe anomalies, which might have affected the airplane's performance, were identified.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot by Dr. Jerri McLemore and Dr. Patricia J. McFeeley, both forensic pathologists with the University of New Mexico's School of Medicine's Office of the Medical Investigator, Albuquerque, New Mexico, on April 25, 1999.

Toxicology tests were performed on the pilot by the FAA's Civil Aeromedical Institute (CAMI) in Oklahoma City, Oklahoma. According to CAMI's report (#9900073001), the pilot's carbon monoxide and cyanide tests were not performed, and no ethanol was detected in the kidneys. The report attributes the ethanol detected in the muscle tissue to be from postmortem formation. The drug Naproxen was identified in heart, kidney, and muscle tissue. Naproxen is an anti-inflammatory medication, which is sold over-the-counter as Aleve.

TEST AND RESEARCH

The performance charts of the airplane indicate that at zero degrees of flaps, the pilot should rotate the airplane for takeoff at 94 knots. Whereas, at 20 degrees of flaps, the pilot should rotate the airplane at 85 knots. A test pilot with The New Piper Aircraft Corporation said that a takeoff with zero degrees verses takeoff with 20 degrees of flaps, "the airplane handles significantly different."

The performance charts further indicate that at zero degrees of flaps, under these conditions, the airplane should be airborne in 3,100 feet of ground roll from where full power was applied. A manufacturer's representative stated that a "rolling takeoff could easily add 800 to 1200 feet to the ground roll."

ADDITIONAL DATA

The airplane, including all components and logbooks, was released to a representative of the owner's insurance company on January 4, 2000.

Pilot Information

Certificate:	Private	**Age:**	58,Male
Airplane Rating(s):	Single-engine land; Multi-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 3 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	July 2, 1998
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	3681 hours (Total, all aircraft), 597 hours (Total, this make and model), 86 hours (Last 90 days, all aircraft), 23 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Smith, Ted Aerostar	**Registration:**	N48MD
Model/Series:	601P 601P	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	61P-0492-201
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	November 26, 1998 Annual	**Certified Max Gross Wt.:**	6000 lbs
Time Since Last Inspection:	132 Hrs	**Engines:**	2 Reciprocating
Airframe Total Time:	4526 Hrs	**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	IO-540-S1A5
Registered Owner:	MICHAEL H. WRIGHT	**Rated Power:**	290 Horsepower
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	SRR ,6811 ft msl	**Distance from Accident Site:**	3 Nautical Miles
Observation Time:	10:30 Local	**Direction from Accident Site:**	290°
Lowest Cloud Condition:	Thin Overcast / 900 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	Overcast / 900 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	11 knots / 14 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	90°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	9°C / 7°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	(SRR)	**Type of Flight Plan Filed:**	IFR
Destination:	LAS VEGAS , NV (VGT)	**Type of Clearance:**	IFR
Departure Time:	10:20 Local	**Type of Airspace:**	Class G

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	33.349525,-105.680046(est)

Administrative Information

Investigator In Charge (IIC):	Struhsaker, James
Additional Participating Persons:	RANDY ROUNDTREE; ALBUQUERQUE , NM GERALD R JAMES; WILLIAMSPORT , PA
Original Publish Date:	June 21, 2000
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=46128