Aviation Investigation Final Report

Location:	ELDERSBURG, Maryland	**Accident Number:**	BFO95FA045
Date & Time:	April 7, 1995, 17:30 Local	**Registration:**	N20819
Aircraft:	CESSNA 172M	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	3 Fatal, 1 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

DURING A GO-AROUND, THE AIRPLANE WAS INADVERTENTLY STALLED. WITNESSES STATED THAT THE AIRPLANE HAD JUST CLEARED POWERLINES WHEN ITS LEFT WING DROPPED DOWN. THE WITNESSES STATED THE AIRPLANE TURNED LEFT AND DESCENDED TO THE GROUND. POSTACCIDENT EXAMINATION OF THE AIRFRAME AND ENGINE REVEALED NO ANOMALIES. THE AIRPLANE'S FLAPS WERE EXTENDED 16 DEGREES. CARBURETOR HEAT WAS APPLIED REDUCING THE AIRPLANE'S CLIMB PERFORMANCE ABOUT 143 FEET PER MINUTE. A NON CERTIFICATED PROPELLER WAS INSTALLED ON THE AIRPLANE REDUCING THE AIRPLANE'S CLIMB PERFORMANCE ABOUT 60 FEET PER MINUTE. A TAILWIND OF ABOUT 5 TO 7 KNOTS WAS PRESENT. AT THE TIME OF THE ACCIDENT, THE AIRPLANE'S GROSS WEIGHT WAS ABOUT 2,149 POUNDS. THE AIRPLANE'S MAXIMUM GROSS WEIGHT WAS 2,300 POUNDS.

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 PROPER AIRSPEED. FACTORS IN THE ACCIDENT WERE THE PILOT'S FAILURE TO REMOVE CARBURETOR HEAT DURING THE GO-AROUND AND THE PRESENCE OF A TAILWIND.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: GO-AROUND (VFR)

Findings
1. (C) AIRSPEED - NOT MAINTAINED - PILOT IN COMMAND
2. (F) CARBURETOR HEAT - NOT REMOVED - PILOT IN COMMAND
3. (F) WEATHER CONDITION - TAILWIND
4. STALL/SPIN - INADVERTENT - PILOT IN COMMAND

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

Factual Information

HISTORY OF FLIGHT

On April 7, 1995, at 1730 eastern daylight time, a Cessna 172M, N20819, collided with terrain about 200 yards from the end of runway 20 at the Hoby Wolf Airport, Eldersburg, Maryland. The pilot and two passengers were fatally injured. A third passenger received serious injuries. The airplane was destroyed. Visual meteorological conditions prevailed. The personal local flight departed Haysfield (MD24) located near Clarksville, Maryland, about 1710. The flight was conducted under 14 CFR Part 91.

The purpose and itinerary of the flight was unknown. A witness located at the Hoby Wolf Airport stated that about 1720 he saw the accident airplane fly over runway 20 at an altitude of about 1,200 to 1,500 feet mean sea level (msl) and then turn right as if the pilot decided to depart the airport area. He stated he did not see the airplane again until it was flying southwest over the "dip" in runway 20. The witness stated, "The aircraft continued up the strip. My immediate thought was it would snag the wires at the end of the strip or go into the top of the trees...the aircraft continued to climb when I expected an immediate nose over or no more than level flight after clearing the wires. As I observed the aircraft it appeared to me at a high angle of attack...at that moment the left wing fell to a vertical position, and it appeared to fall left wing down...." The witness reported that at the time of the accident the wind was coming from the north at about 5 to 7 knots.

A witness located in his yard across from the runway stated he saw and heard N20819 flying over runway 20 at about 50 feet above the ground. He stated he watched the airplane because "...by the time they are adjacent to my house, most airplanes have landed." He said when the airplane reached the end of the runway, about 100 to 150 feet above the ground "...the airplane then went into a vigorous climb...kind of leveled off and made a sweeping left hand turn." He stated that during the climb he heard the engine "gurgle" or "sputter" about six to eight times.

Another witness located outside her home at the accident site reported, "I heard the engine of a plane which was extremely loud and extremely close. I saw the plane come over our pine trees. It leaned onto its left side. The wing hit the ground and the plane turned so that it was facing back towards me. The nose of the plane impacted the ground...."

PERSONNEL INFORMATION

The pilot held a Airline Transport Pilot certificate with a multiengine land rating and was type rated in a Cessna 500. He had commercial pilot privileges for airplane single engine land and was type rated in a Dehavilland DH-4 and a Lockheed L-382. The pilot also held a ground instructor certificate with advanced and instrument ratings; a Flight Engineer certificate with a

turbojet rating; and a Control Tower Operator certificate for the Teterboro, New Jersey, Air Traffic Control Tower. The pilot's civilian log book was not recovered. The pilot reported a total of 5,000 civilian flight hours on his last application for a Federal Aviation Administration first class medical certificate on December 2, 1993.

The pilot received a proficiency check ride in a Cessna 172 from an instructor at Flite-Rentals, Howard County, Maryland, in March 1995. Prior to the check ride, the pilot reported to Flite-Rentals that he received a biennial flight review in August 1993, and had accumulated a total of 6,000 flight hours.

According to the owner of the Hoby Wolf airport, the pilot had landed at his airport only once prior to the accident. He stated that the day before the accident, the pilot landed at the airport and made a full stop.

The passenger in the front right seat was a student pilot. According to a family member, the student pilot had not flown an airplane for several years.

AIRCRAFT INFORMATION

According to the airplane's log books, the airplane received a 100 hour inspection on March 30, 1995, about 11 hours prior to the accident.

The propeller installed on the accident airplane was a McCauley 1C160/DTM7557. According to Cessna Aircraft Certification records, the airplane was delivered with a McCauley 1C160/DTM7553 propeller installed. According to Cessna flight test data, the use of a McCauley 1C160/DTM7557 would result in a loss of about 60 feet per minute rate of climb.

According to Cessna Aircraft personnel calculations, in a climb condition with carburetor heat applied, the airplane's rate of climb would be reduced about 143 feet per minute. (See attached "Rate of Climb Change With Application of Carburetor Heat" for assumed parameters).

The airplane's empty weight was 1,419 pounds and its gross maximum weight was 2,300 pounds. At the time of the accident, the airplane's gross weight was about 2,149 pounds. (See attached Gross Weight Calculation sheet for details).

AIRPORT INFORMATION

Remarks listed under the Hoby Wolf Airport in the Airport/Facility Directory state, "...land on Rwy 20 tkf Rwy 02. Rwy 02-20 has up and down slopes with undulations: Ldg-first 535' has a 3 degree upslope and next 315' has a 2 degree downslope, rest of rwy has 4 1/2' upslope to road." The owner of the airport stated that a standard pattern was in use (left turns only). Trees and powerlines were present at the end of runway 20.

WRECKAGE AND IMPACT INFORMATION

The airplane wreckage was examined at the accident site on April 8, 1995. The examination revealed the airplane came to rest upright on a magnetic heading of about 300 degrees. The engine was displaced downward. The propeller blade tips were curled and bent aft. Control continuity was verified.

The left wing remained attached to the fuselage and its tip was crushed upward. The entire left wing was dented and crushed. The left wing flap was found extended 16 degrees. The empennage was intact but the fuselage skin behind the cabin was buckled. The elevator trim tab was found to be 2.5 degrees nose down. The right wing was attached to the fuselage and its leading edge was crushed aft. The right wing flap was found extended 16 degrees.

The throttle and mixture controls were full forward. The carburetor heat control in the cabin was pulled to the on position. Also, verification of the carburetor heat control position was confirmed by the heat valve position. The heat valve position was in the on position at the induction air box. The ignition switch was found in the left magneto position. The fuel selector was found in the "BOTH" position. About 20 gallons of 100LL aviation grade fuel was removed from the airplane's fuel system and no fuel contaminates were found.

The airplane was removed from the accident site and transported to a storage facility. The engine was examined at the storage facility and no anomalies were noted.

MEDICAL AND PATHOLOGICAL INFORMATION

The autopsy and toxicology were performed by Dr. Golle at the Baltimore, Maryland, Medical Examiner's Office, on April 7, 1995.

ADDITIONAL INFORMATION

At 1653, the Baltimore, Maryland, weather observation facility reported an outside air temperature of 71 degrees fahrenheit and a dew point of 28 degrees fahrenheit. According to Carburetor Icing Probability Curves, conditions which are known to be favorable to the formation of induction system icing in typical light aircraft installations were not present.

The airplane was released to Nancy Seal, Insurance Agent, Clearview Airport Inc., Westminster, Maryland, on April 10, 1995.

Pilot Information

Certificate:	Airline transport; Flight engineer; Military	**Age:**	44,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 1 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	December 2, 1993
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	6000 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	CESSNA	**Registration:**	N20819
Model/Series:	172M 172M	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	172-63846
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	March 30, 1995 100 hour	**Certified Max Gross Wt.:**	2300 lbs
Time Since Last Inspection:	11 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	3066 Hrs	**Engine Manufacturer:**	LYCOMING
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	O-320-E2D
Registered Owner:	AVIATION INVESTMENT RESOURCES	**Rated Power:**	150 Horsepower
Operator:	JD KREIS AVIATION INCORPORATED	**Operating Certificate(s) Held:**	None
Operator Does Business As:	FLITE RENTALS	**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	BWI ,146 ft msl	**Distance from Accident Site:**	15 Nautical Miles
Observation Time:	16:53 Local	**Direction from Accident Site:**	160°
Lowest Cloud Condition:	Clear	**Visibility**	15 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	300°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	22°C / -2°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	CLARKSVILLE (MD24)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	
Departure Time:	17:00 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	HOBY WOLF 1W5	**Runway Surface Type:**	Grass/turf
Airport Elevation:	600 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	20	**IFR Approach:**	
Runway Length/Width:	1940 ft / 60 ft	**VFR Approach/Landing:**	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	2 Fatal, 1 Serious	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	3 Fatal, 1 Serious	**Latitude, Longitude:**	39.370994,-76.969047(est)

Administrative Information

Investigator In Charge (IIC):	Napolitan, Margaret
Additional Participating Persons:	JOHN MACHELLI; BALTIMORE , MD DAN FLETCHER; WILLIAMSPORT , PA JOSEPH A HUTTERER; WICHITA , KS
Original Publish Date:	September 24, 1995
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=8996