Aviation Investigation Final Report

Location:	Castle Rock, Colorado	**Accident Number:**	DEN07FA089
Date & Time:	April 29, 2007, 17:13 Local	**Registration:**	N123KS
Aircraft:	Schleicher Alexander GMBH ASH 26E	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

According to several witnesses, the self-launching sailplane entered a turn to the left. During the turn, the left wing dropped and the sailplane dove towards the ground. Ground scars at the scene were consistent with a nose low, left wing low, impact attitude. An examination of the glider's systems revealed no anomalies. Thunderstorm activity existed along the route of flight. The pilot had not obtained a full weather briefing prior to the flight.

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 resulting in an inadvertent stall/mush.

Findings

Occurrence #1: IN FLIGHT ENCOUNTER WITH WEATHER
Phase of Operation: DESCENT - NORMAL

Findings
1. WEATHER CONDITION - THUNDERSTORM

Occurrence #2: LOSS OF CONTROL - IN FLIGHT

Phase of Operation: CRUISE

Findings
2. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
3. (C) STALL/MUSH - INADVERTENT - PILOT IN COMMAND

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
4. TERRAIN CONDITION - GROUND

Factual Information

HISTORY OF FLIGHT

On April 29, 2007, at 1713 mountain daylight time, a Schleicher Alexander GMBH ASH 26E self launching sailplane, N123KS, owned and piloted by a commercial pilot, was substantially damaged when it impacted terrain approximately 5 miles west of Castle Rock, Colorado. Visual meteorological conditions prevailed at the time of the accident. The personal flight was being conducted under the provisions of Title 14 Code of Federal Regulations Part 91 without a flight plan. The pilot was fatally injured. The local flight originated from Kelly Airpark at 1310.

According to several members of the Black Forest Soaring Society, the accident pilot arrived at the Kelly Airpark with the intention to fly his personal sailplane. The Black Forest Soaring Society tow plane pilot was unable to fly and the accident pilot elected to fly the club tow plane until another tow pilot was available. They estimate he flew for 1 hour.

After conducting 4 tow flights, the accident pilot got into his personal sailplane to fly. According to Black Forest Soaring Society members, 8 to 10 gliders launched from Kelly Airpark the day of the accident. At least five of those gliders, including the accident flight, flew to the west of Kelly Airpark. Three of those flights proceeded as far north as Steamboat Springs, Colorado. The accident flight, and one other glider flew up and down the Front Range.

Several witnesses, just west of Castle Rock, observed a sailplane, matching the description of the accident sailplane, flying in the area. One witness reported observing the sailplane enter a bank to the left. The witness stated that the sailplane leveled off and then initiated a turn to the left again. The witness stated that the left wing dropped, and the nose of the sailplane dove straight to the ground. The sailplane disappeared behind the ridge. Another witness observed the flight from a distance and stated that the sailplane was descending. The witness commented that the first 1,000 feet of the descent "did not seem too fast." He stated further that the last 1,000 feet of altitude loss "took place between 30 seconds and a minute."

PERSONNEL INFORMATION

The pilot, age 44, held a commercial pilot certificate, with an airplane single engine, multi-engine, glider, and instrument ratings, which was last issued on October 1, 2006. He was issued a second class airman medical certificate on October 23, 2006. The certificate contained the limitation that the "holder shall wear lenses that correct for distant vision while exercising the privileges of his/her airman certificate." According to an instructor with the Black Forest Soaring Society, the pilot obtained a spring currency flight April 14, 2007. The flight duration was 45 minutes.

The aircraft maintenance log was provided to the National Transportation Safety Board (Safety Board) investigator-in-charge (IIC) for review. The pilot had logged his flight experience in the accident sailplane maintenance log, excluding the accident flight, and the flight from the day prior. According to this log, the pilot had no less than 123 hours in the accident sailplane.

The family provided the Safety Board IIC a photocopied page of an aircraft pilot log and a glider pilot log, both appearing to belong to the accident pilot. A review of these flight logs revealed that the accident pilot had logged no less than 1,664 hours total time; 367 hours of which was in gliders.

AIRCRAFT INFORMATION

The accident sailplane, a Schleicher Alexander GMBH ASH 26E (serial number 26157), was manufactured in 1999. It was registered with the Federal Aviation Administration on a standard airworthiness certificate for utility category operations. The sailplane was equipped with a Diamond AE50R, rotary engine rated for 50 horsepower at 7,500 rpm. The engine was equipped with a 2-blade, stowable propeller.

The sailplane was registered to and operated by the pilot, and was maintained under an annual inspection program. A review of the maintenance records indicated that an annual inspection had been completed on April 2, 2007, at an airframe total time of 509 hours. The sailplane had flown approximately 6 hours between the last inspection and the accident.

METEOROLOGICAL INFORMATION

Weather Radar Data (WSR-88D) (approximately 30 nautical miles northwest of the accident location) scanned the accident area at 1722, 1728, and 1734. Data indicated reflectivity values of 30 to 45 dBz in the accident area round the accident time. Visible satellite and infrared satellite imagery depicted cumulonimbus clouds with cloud top temperatures of minus 41.06 and minus 49.56 degrees Celsius. These temperatures correspond to cloud tops near 31,500 to 35,000 feet mean sea level (msl).

Airman's meteorological information (AIRMET) SIERRA for turbulence and TANGO for icing was valid for Colorado, including the accident sailplane's route of flight. No Significant meteorological information (SIGMET) or Convective SIGMET were issued for the time of the accident. A center weather advisory (CWA) for scattered thunderstorms, with tops from 30,000 to 35,000 feet msl, was issued at 1415 and was valid until 2000. Several pilot reports (PIREPS) had been issued for the Denver area regarding turbulence. Reports given for turbulence included light to moderate turbulence from 7,000 feet to 21,000 feet msl.

The closest official weather observation station was Centennial Airport (APA), Englewood, Colorado, located 7 nautical miles (nm) north northeast of the accident site. The elevation of the weather observation station was 5,883 feet msl. The routine aviation weather report (METAR) for APA, issued at 1753, reported, winds, 230 degrees at 17 knots, gusting to 22

knots; visibility, 10 statute miles; sky condition, few 8,000, scattered 13,000, broken 22,000; temperature 21 degrees Celsius (C); dewpoint, 02 degrees C; altimeter, 30.07 inches. The remarks section reported virga distant south through west, cumulonimbus clouds distant south.

Witnesses in the area, around the time of the accident, reported high, gusty surface winds, and thunderstorm activity directly west of the accident location. One witness reported that the sailplane appeared to have come from the thunderstorm. Heavy rain began shortly after the accident. No record of a weather briefing was found with Flight Service Station or Direct User Access Terminal System (DUATS).

WRECKAGE AND IMPACT INFORMATION

The National Transportation Safety Board investigator-in-charge (IIC) arrived on scene approximately 1900 on April 29, 2007. The accident site was located in sparsely vegetated, hilly terrain at the corner of a ranch. A global positioning system receiver reported the coordinates of the main wreckage as 39 degrees 22 minutes 17.1 seconds north latitude, and 104 degrees 56 minutes 52.7 seconds west longitude. The accident site was at an elevation of 6,105 feet msl and the sailplane impacted on a magnetic heading of 070 degrees.

The first identified point of contact (FIPC) was located to the west of the main wreckage. The FIPC consisted of a ground crater 11 feet long, 4 feet at its widest point, and 8 inches deep. The dirt within the crater was pushed out towards the main wreckage. White paint chips were located within the crater. A second ground scar was located just to the north of the FIPC. This scar was 17 feet in length, 16 inches at its widest point, and was oriented north to south or perpendicular to the FIPC. A third ground scar, located just to the south of the FIPC, was 3 feet long and 4 inches at its widest point. It was oriented in a west to east direction.

A debris path extended from the FIPC to the main wreckage. Paint chips, fiberglass, fragmented Plexiglas, various rubber hoses, portions of the control tubes, and fractured control surfaces were all located within the debris path. The main wreckage was located 100 feet from the FIPC and came to rest on a magnetic heading of 170 degrees. The main wreckage consisted of the left and right wings, portions of the empennage, and the fuselage (to include the engine and propeller assembly). The wreckage came to rest upright.

The front portion of the fuselage, to include the cabin, canopy, and instrument panel was crushed up and aft and was destroyed. The rudder control quadrant separated from the fuselage; the right rudder pedal was crushed aft and the left pedal separated partially from the quadrant. The push tubes for the ailerons and elevator separated from the control stick. The left side solar panel door separated partially from the fuselage. The right door was unremarkable. The propeller was found in the stowed position. The main landing gear separated from the fuselage. The position of the gear could not be confirmed.

The right wing, to include the aileron and flap, remained attached to the fuselage. The outboard

portion of the aileron had separated from the wing. The wing flap was crushed and fragmented. The leading edge of the wing was unremarkable. Control continuity to the spoiler, aileron, and flap was confirmed. Due to impact damage, the position of the flap could not be confirmed.

The left wing, to include the aileron and flap, remained partially attached to the fuselage. The wing was partially delaminated and broken 67 inches outboard from the wing root. Eight feet of the outboard portion of the wing separated partially and the aileron was fractured at mid-span. The entire leading edge was crushed aft and fragmented. Control continuity to the spoiler, aileron, and flap was confirmed. Due to impact damage, the position of the flap could not be confirmed.

The empennage, to include the vertical stabilizer, horizontal stabilizer, elevator, and rudder separated from the fuselage. The horizontal stabilizer and elevator separated from the empennage and were located approximately 37 feet south of the main wreckage. The control cables for the rudder control remained attached. Control continuity to the elevator and rudder was confirmed.

MEDICAL AND PATHOLOGICAL INFORMATION

The autopsy was performed by the Douglas County Coroner's office on May 1, 2007. The autopsy revealed the cause of death "due to head and internal injuries secondary to blunt force trauma." During the autopsy, specimens were collected for toxicological testing to be performed by the FAA's Civil Aerospace Medical Institute, Oklahoma City, Oklahoma (CAMI Reference #200700094001). Results were negative for all tests conducted.

TESTS AND RESEARCH

The sailplane was equipped with a Cambridge Aero Instruments 301/302. The unit was removed from the instrument panel and taken to Kelly Airpark for download of the data. According to the data, the flight began at 1310:05, when the glider departed from Kelly Airpark. The flight proceeded west towards Palmer Lake and then south towards Woodland Park and Florissant. The flight reversed course to the north and proceeded to Grand Lake, just north of Granby, Colorado. The flight then reversed course to the south, back towards Denver, and Castle Rock. The recording ended at 1713:33.

ADDITIONAL INFORMATION

Parties to the investigation included the FAA as represented by an airworthiness inspector from the Denver Flight Standards District Office. The wreckage was released to a representative of the insurance company on May 17, 2007.

Pilot Information

Certificate:	Commercial	**Age:**	44,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Center
Other Aircraft Rating(s):	Glider	**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:**	October 1, 2006
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	1664 hours (Total, all aircraft), 123 hours (Total, this make and model), 8 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Schleicher Alexander GMBH	**Registration:**	N123KS
Model/Series:	ASH 26E	**Aircraft Category:**	Glider
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Utility	**Serial Number:**	26157
Landing Gear Type:	Retractable - Tandem	**Seats:**	1
Date/Type of Last Inspection:	April 1, 2007 Annual	**Certified Max Gross Wt.:**	1158 lbs
Time Since Last Inspection:	6 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	509 Hrs as of last inspection	**Engine Manufacturer:**	Diamond
ELT:		**Engine Model/Series:**	AE50R
Registered Owner:	On file	**Rated Power:**	50 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KAPA,5883 ft msl	**Distance from Accident Site:**	15 Nautical Miles
Observation Time:	16:53 Local	**Direction from Accident Site:**	11°
Lowest Cloud Condition:	Few / 8000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	Broken / 22000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	17 knots / 22 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	230°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.06 inches Hg	**Temperature/Dew Point:**	21°C / 2°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Kelly Airpark, CO (PVT)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	Unknown
Departure Time:	13:10 Local	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	39.371387,-104.947776

Administrative Information

Investigator In Charge (IIC):	Kaiser, Jennifer
Additional Participating Persons:	Joseph P Hanley; FAA FSDO; Denver, CO
Original Publish Date:	August 30, 2007
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=65670