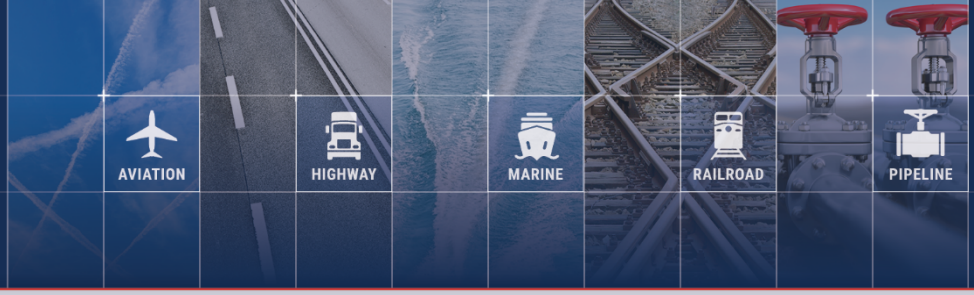

Aviation Investigation Final Report

Location:	Cle Elum, Washington	**Accident Number:**	WPR12FA010
Date & Time:	October 13, 2011, 15:58 Local	**Registration:**	N7760A
Aircraft:	DG FLUGZEUGBAU GMBH DG 1000S	**Aircraft Damage:**	Substantial
Defining Event:	Aerodynamic stall/spin	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Other work use		

Analysis

Witnesses reported that the glider became airborne within the first one-third of the runway during an automobile ground launch. The glider then pitched to a steep nose-high attitude and ascended through about 100 to 125 feet when the rope broke. The glider continued to ascend and momentarily leveled off near the end of the runway. The glider then entered a steep right bank angle turn and descended, turning about 300 degrees from its initial departure heading before it impacted terrain.

Postaccident examination of the glider revealed no evidence of a malfunction or failure that would have precluded normal operation. The glider's right turn and associated steep bank angle likely resulted in a significant loss of airspeed and subsequent aerodynamic stall at a low altitude, with insufficient altitude for the pilot to recover. It is also likely that the tow rope reached its maximum tensile load and broke as a result of the rapid pitch-up maneuver after takeoff. The reason for the rapid pitch up maneuver could not be determined.

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 airspeed and control after takeoff, which resulted in an aerodynamic stall.

Findings

Aircraft	Airspeed - Not attained/maintained
Personnel issues	Incorrect action performance - Pilot
Personnel issues	Aircraft control - Pilot

Factual Information

History of Flight

Takeoff	Glider tow event
Takeoff	Aerodynamic stall/spin (Defining event)
Takeoff	Collision with terr/obj (non-CFIT)

HISTORY OF FLIGHT

On October 13, 2011, about 1558 Pacific daylight time, a Flugzeugbau DG 1000 S glider, N7760A, impacted terrain in a nose-low attitude shortly after takeoff from the Cle Elum Municipal Airport (S93), Cle Elum, Washington. The commercial pilot, the sole occupant of the glider, was fatally injured. The 2-seat glider sustained substantial damage to the forward fuselage and wings. The glider was registered to Northwest Eagle Soaring LLC, and operated by the pilot under the provisions of 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed and no flight plan was filed for the local flight.

The accident occurred shortly after an automobile ground launch of the glider. The launch sequence was filmed in support of the production of a television commercial. A full-size sport utility vehicle was used to ground launch the glider; the launch commenced near the threshold of runway 7.

The driver of the tow vehicle reported that he towed the glider multiple times in the days preceding the accident flight. The morning of the accident, the tow vehicle driver and glider pilot briefed the flight; the driver reported that the pilot instructed him to reach 70 mph in the tow vehicle as quickly as possible so the glider could become airborne. The pilot planned to become airborne and then circle back to the airport to land. The driver reported that he reached 70 mph near the midpoint of the runway and that he observed the glider, in his mirror, become airborne. A ground support person that was riding in the tow vehicle reported to the driver that the glider was aloft, but that the tow rope had broken, so he instructed the driver to exit the runway. The driver reported that shortly thereafter, he observed the glider nose-dive into the ground.

A witness located near the accident site recorded a short video of the airplane on his cellular phone. The video captured the several seconds of the accident sequence prior to impact. The video images revealed that the glider began its takeoff roll near the approach end of runway 7, towed by the sport utility vehicle. As the tow vehicle accelerated, the glider became airborne and remained wings level, in ground effect, until about the midpoint of the runway. Shortly after reaching the midpoint of the runway, the glider pitched to a steep nose-high attitude and began to climb while still tethered to the tow vehicle. As the climb progressed, the tow rope slackened and fell to the ground. The glider then pitched to a cruise-like level attitude and

remained over the runway, wings level, on an easterly heading about 200 feet above the runway. Near the departure end of the runway, the glider entered a steep banked turn to the right. The glider's nose dropped as the bank increased. As it descended, the glider rotated approximately 300 degrees from its initial departure heading before it impacted terrain in a steep nose-low attitude.

Other witnesses located adjacent to the departure runway reported that the first stage of the automobile ground launch appeared normal, and the glider became airborne within the first one-third of the runway. Shortly thereafter, about three-quarters of the way down the runway, the glider pitched to a steep nose-high attitude. As the glider ascended through about 100 – 125 feet above the ground, the rope slackened. The glider continued to ascend, and then leveled off about 200 feet above the end of the runway. Shortly after, the glider entered a steep right bank and descended into the ground. As it descended, the glider turned approximately 300 degrees from its initial departure heading before it impacted terrain.

PERSONNEL INFORMATION

The pilot, age 53, held a commercial pilot certificate with glider, airplane single-engine land, single-engine sea and instrument ratings. The pilot also held a flight instructor certificate for airplane single-engine land, glider and instrument ratings.

The pilot held a second-class airman medical certificate issued August 5, 2011, with a limitation that he wear corrective lenses.

The pilot's logbook was not recovered for examination. On the pilot's most recent application for the medical certificate, he reported 1,610 total civilian flight hours.

AIRCRAFT INFORMATION

The DG-1000S tow-seat glider was manufactured in Germany by DG Flugzeugbau, Gmbh. The glider was largely constructed with composite materials and incorporated a retractable main landing gear. The glider was issued a Federal Aviation Administration (FAA) airworthiness certificate in December of 2003.

A review of the maintenance logbook revealed that an annual inspection was completed on September 28, 2011, at an airframe total time of 764 hours.

Tow Vehicle:

A full-size sport utility vehicle was used to tow the glider. The nylon tow rope used measured approximately 234 feet and was 5/16-inch in diameter.

METEOROLOGICAL INFORMATION

The closest aviation weather observation was recorded at Ellensburg, Washington, about 17 miles southeast of the accident location, at 1553. The following conditions were reported: winds from 160 degrees at 9 knots, visibility 10 miles, sky condition clear, temperature 60 degrees Fahrenheit, dew point 35 degrees Fahrenheit, altimeter setting 30.09 inches of mercury.

AIRPORT INFORMATION

Cle Elum Municipal Airport is located in a valley at an elevation of 1,944 feet, and is surrounded by rising mountainous terrain. The airport has a hard-surfaced asphalt runway, which constitutes runways 07 and 25. Runway 07 is 2,552 feet long and 40 feet wide. The runway is bordered to the north by large conifer trees.

WRECKAGE AND IMPACT INFORMATION

The glider was mostly intact and came to rest in high grass adjacent to the departure end of runway 07. A postaccident examination of the glider by representatives from the NTSB and FAA showed extensive impact damage to the cockpit and forward section of the glider. Flight control continuity to the elevator, flight spoilers and ailerons was established. Examination of the glider revealed no evidence of a preexisting malfunction or failure that would have precluded normal operation. A complete examination report is contained within the public docket.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was coordinated by the Kittitas County Coroner, with the cause of death reported as multiple blunt force trauma.

Toxicological tests on specimens recovered from the pilot were performed by the FAA Civil Aerospace Medical Institute. The results were negative for all screened drug substances and ingested alcohol. Refer to the toxicology report included in the public docket for specific test parameters and results.

ADDITIONAL INFORMATION

The tow rope broke during the initial takeoff; however, examination of the rope and associated hardware showed no evidence of a preexisting malfunction or excessive wear that would have precluded normal operation.

Pilot Information

Certificate:	Commercial	**Age:**	53,Male
Airplane Rating(s):	Single-engine land; Single-engine sea	**Seat Occupied:**	Front
Other Aircraft Rating(s):	Glider	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Glider	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	August 5, 2011
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	(Estimated) 1610 hours (Total, all aircraft), 1000 hours (Total, this make and model), 1610 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	DG FLUGZEUGBAU GMBH	**Registration:**	N7760A
Model/Series:	DG 1000S	**Aircraft Category:**	Glider
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	10-34S33
Landing Gear Type:	Retractable - Tandem	**Seats:**	2
Date/Type of Last Inspection:	September 28, 2011 Annual	**Certified Max Gross Wt.:**	1389 lbs
Time Since Last Inspection:		**Engines:**	0
Airframe Total Time:	764 Hrs at time of accident	**Engine Manufacturer:**	
ELT:	C91A installed, activated, did not aid in locating accident	**Engine Model/Series:**	
Registered Owner:	NORTHWEST EAGLE SOARING LLC	**Rated Power:**	
Operator:	NORTHWEST EAGLE SOARING LLC	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	ELN,1764 ft msl	**Distance from Accident Site:**	17 Nautical Miles
Observation Time:	16:53 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	160°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.09 inches Hg	**Temperature/Dew Point:**	16°C / 2°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Cle Elum, WA (S93)	**Type of Flight Plan Filed:**	None
Destination:	Cle Elum, WA (S93)	**Type of Clearance:**	None
Departure Time:	15:58 Local	**Type of Airspace:**	

Airport Information

Airport:	Cle Elum Municipal Airport S93	**Runway Surface Type:**	Asphalt
Airport Elevation:	1944 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	07	**IFR Approach:**	None
Runway Length/Width:	2552 ft / 40 ft	**VFR Approach/Landing:**	None

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:**	47.194168,-120.883331(est)

Administrative Information

Investigator In Charge (IIC):	Hogenson, Dennis
Additional Participating Persons:	Steve Dunn; Federal Aviation Administration; Spokane, WA
Original Publish Date:	July 23, 2013
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=82059