Aviation Investigation Final Report

Location:	Morgan, Utah	**Accident Number:**	DEN03LA128
Date & Time:	July 14, 2003, 16:50 Local	**Registration:**	N27TA
Aircraft:	Grob G103 Twin Astir	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal, 1 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The two glider pilots were returning to their point of departure (a high mountain airport). The lift on the return track had deteriorated, and they decided to do an off field landing. The two pilots identified a field for a landing, but then encountered some ridge lift. They continued flying, but the new found lift again deteriorated. They reversed course towards their initial off airport landing site. After reversing course, the glider experienced "a straight level shear," the airspeed dropped from 60 knots to 40 to 42 knots. The left wing dropped approximately 20 degrees, the nose dropped and the plane rotated to the left. This positioned the glider towards the mountain slope and "head on." The rear seat pilot (pilot in command) took control of the glider at this time. The glider impacted a ridge, crushing the composite nose into the front cockpit. The front seat pilot (second pilot), died in the hospital the following morning.

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 adequate airspeed which resulted in a stall/mush. Also causal was the pilot's inadequate in-flight planning/decision to fly low over a mountain ridge. Contributing factors included the wind shear, altitude/clearance, and the lack of suitable terrain for a forced landing.

Findings

Occurrence #1: IN FLIGHT ENCOUNTER WITH WEATHER
Phase of Operation: MANEUVERING

Findings
1. (F) WEATHER CONDITION - WINDSHEAR

Occurrence #2: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: MANEUVERING

Findings
2. (C) AIRSPEED - NOT MAINTAINED - PILOT IN COMMAND
3. STALL/MUSH - INADVERTENT - PILOT IN COMMAND
4. (C) IN-FLIGHT PLANNING/DECISION - INADEQUATE - PILOT IN COMMAND
5. (F) ALTITUDE/CLEARANCE - INADEQUATE - PILOT IN COMMAND

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

Findings
6. (F) UNSUITABLE TERRAIN OR TAKEOFF/LANDING/TAXI AREA - ENCOUNTERED
7. TERRAIN CONDITION - MOUNTAINOUS/HILLY
8. TERRAIN CONDITION - ROCK(S)/BOULDER(S)

Factual Information

HISTORY OF FLIGHT

On July 14, 2003, at 1650 mountain daylight time, a Grob G103 Twin Astir glider, N27TA, was destroyed when it impacted terrain near Morgan, Utah. The commercial pilot in the front seat was fatally injured and the airline transport pilot-in-command in the back seat was seriously injured. The glider was being operated under Title 14 CFR Part 91. Visual meteorological conditions prevailed for the local flight that originated from Morgan County Airport (42U), Morgan, Utah, at 1423.

According to the statement provided by the pilot, he and the second pilot met at the airport at approximately 1405. The second pilot (the owner of the glider) had already prepared for the flight and they proceeded to organize for their tow. The tow pilot said that "the lift was weak down low, but as we got higher the lift got better." The glider released from the tow line at 9,200 feet. The tow pilot said that when he descended into the valley, to return to the airport, the lift was "O.K.," but there wasn't very much sink either. The pilot said the flight was uneventful, and he and the second pilot took turns flying. During the flight, they calculated their ground speed several times, and found that the winds varied from 5 to 7 knots.

The pilot said that good lift became more difficult to find, so they decided to return to the airport. On the return flight they encountered a little sink, but "we couldn't find any lift." They quickly realized that "the lift conditions that were present were not going to get us back into Morgan [airport]." The pilot said that they located a field of "cut alfalfa, west of the city," which became their primary field for an off-airport landing.

The glider encountered ridge lift, so they continued north to see how long the lift "held out." The lift did not last so they reversed course towards their primary field. After reversing course, the glider experienced "a straight level shear," dropping in airspeed from 60 knots, to 40 to 42 knots. The left wing dropped to approximately 20 degrees, the nose dropped, and the plane rotated to the left. This positioned the glider directly towards the mountain slope and "head on." The pilot took control of the glider, adding "full right aileron and right rudder to coordinate" the glider. Due to the loss of altitude and rising terrain, they were unable to sustain flight. He pitched the nose down to gain airspeed so that they could match the contour of the mountain during impact.

During impact, the glider slid up the mountain approximately 17 feet prior to impacting a rock. The rock penetrated the floor of the fuselage pushing the pilot and second pilot "up and through the canopy." The glider became airborne again, flying over the ridge, and traveled another 117 feet before impacting the terrain for a second time. The glider slid over the edge of the ridge, and came to rest approximately 20 feet from the second impact point. The nose

of the fuselage was crushed in and the empennage was broken from the fuselage. The second pilot died in the hospital early the following morning.

PERSONNEL INFORMATION

The pilot held an airline transport pilot certificate with an airplane multiengine land rating, a commercial pilot certificate with airplane single engine land and glider ratings in addition to a flight instructor certificate with airplane single and multiengine, instrument and glider ratings. He was issued a FAA first class medical certificate on June 3, 2003. According to his accident report, he had 43 hours of glider time in the last 90 days.

The second pilot held a commercial pilot's certificate with airplane single engine, multiengine, and instrument ratings. He also held a private pilot certificate with a glider rating in addition to a flight instructor certificate with airplane single engine, multiengine, and instrument ratings. The second pilot was issued a Federal Aviation Administration (FAA) second class airman medical certificate on August 9, 2002. The certificate contained no limitations; however, he had been issued a color vision deficiency waiver. At the time of his FAA medical examination, the he wrote on his application that he had 3,600 hours of flight experience, with 500 hours of flight time logged in the last six months.

AIRCRAFT INFORMATION

The non-powered, center wheel glider, a G103 Twin Astir (s/n 3111), was manufactured in Germany by Burkhart Grob Flugzeugbau in 1978. The two seat glider had a maximum gross weight of 1,425 pounds. The aircraft was equipped with supplemental oxygen, and a Global Position System with a recorder.

METEOROLOGICAL INFORMATION

The weather report taken at 1653 in Ogden, 11 nautical miles northwest of the accident site was: wind, 350 degrees at 7 knots; 300 degrees variable 020 degrees; visibility, 10 statute miles; sky condition, clear; temperature, 95 degrees Fahrenheit (F); dew point, 35 degrees F; altimeter setting, 30.06 inches.

According to the pilot, prior to impact, he noted a nearby flag, approximately 3 feet by 5 feet, "totally unfurled, it wasn't whipping or waving and so [he] estimated [the] wind speed between 10 and 15 knots."

WRECKAGE, RECOVERY, AND DOCUMENTS

The airplane was found upright at approximately 135 feet below a grassy ridgeline (N41 degrees, 01.78 minutes; W111 degrees, 39.81 minutes; elevation 5,655 feet). The intermittent ground scar leading to the aircraft was 165 feet in length, and oriented at 250 degrees; the final longitudinal axes of the glider came to rest on a 039 degrees orientation. All of the glider's

major components were accounted for at the accident site. The wings were minimally damaged, and the empennage was separated from the fuselage. The composite nose of the aircraft was crushed and fragmented aft, the single center landing wheel was separated from the fuselage, and the two canopy transparencies were shattered.

No preimpact airframe anomalies, which might have affected the airplane's performance, were identified. The accident site was located 10 nm from the pilots intended landing airport.

MEDICAL & PATHOLOGICAL INFORMATION

The State of Utah's Department of Heath, Office of the Medical Examiner, Salt Lake City, Utah, performed an autopsy on the second pilot on July 15, 2003.

The FAA's Civil Aeromedical Institute (CAMI) in Oklahoma City, Oklahoma, performed toxicology tests on the second pilot. The FAA toxicology report (CAMI #200300212001) showed no carbon monoxide, or cyanide was detected in the blood. Ethanol was not detected in the vitreous; lidocaine was detected in the liver, and .1 ug/ml of lidocaine was detected in the blood. Lidocaine is an ant arrhythmic drug commonly used in medical care to restore an irregular heartbeat in patients with arrhythmia.

ADDITIONAL DATA

The National Transportation Safety Board did not send an investigator to the accident site; an FAA inspector did go to the site.

Pilot Information

Certificate:	Airline transport; Flight instructor	**Age:**	37,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Rear
Other Aircraft Rating(s):	Glider	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Glider; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	June 3, 2003
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	August 21, 2002
Flight Time:	12000 hours (Total, all aircraft), 200 hours (Total, this make and model), 300 hours (Pilot In Command, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Pilot Information

Certificate:	Commercial; Flight instructor; Private	**Age:**	35,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Front
Other Aircraft Rating(s):	Glider	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	August 9, 2002
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	3600 hours (Total, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Grob	**Registration:**	N27TA
Model/Series:	G103 Twin Astir	**Aircraft Category:**	Glider
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Utility	**Serial Number:**	3111
Landing Gear Type:		**Seats:**	2
Date/Type of Last Inspection:	June 2, 2003 Annual	**Certified Max Gross Wt.:**	1425 lbs
Time Since Last Inspection:	14 Hrs	**Engines:**	
Airframe Total Time:	3500 Hrs as of last inspection	**Engine Manufacturer:**	
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	
Registered Owner:	HALF ASTIR SOARING LLC	**Rated Power:**	
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	OGD,4470 ft msl	**Distance from Accident Site:**	11 Nautical Miles
Observation Time:	16:53 Local	**Direction from Accident Site:**	285°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	7 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.05 inches Hg	**Temperature/Dew Point:**	35°C / 2°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	MORGAN, UT (42U)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	14:15 Local	**Type of Airspace:**	Class E

Wreckage and Impact Information

Crew Injuries:	1 Fatal, 1 Serious	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal, 1 Serious	**Latitude, Longitude:**	41.018611,-111.651947

Administrative Information

Investigator In Charge (IIC):	Struhsaker, James
Additional Participating Persons:	Mark Rushton; FAA FSDO; Salt Lake City, UT
Original Publish Date:	September 1, 2004
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=57476