



Aviation Investigation Final Report

Location:	Kenai, Alaska	Accident Number:	ANC08FA087
Date & Time:	July 12, 2008, 11:00 Local	Registration:	N212DR
Aircraft:	Iversen Glastar SH-4	Aircraft Damage:	Destroyed
Defining Event:	Loss of control in flight	Injuries:	3 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot departed on a local personal flight in an amphibious, float-equipped experimental airplane with two passengers. About 40 minutes after takeoff, the burning wreckage of the airplane was spotted by overflying aircraft. The airplane was built by the pilot from a kit, and was designed by the kit manufacturer to have two side-by-side seats in the cockpit. A large cargo area was behind the two front seats. According to a neighbor, the accident airplane was equipped with a third seat, designed and built by the pilot. The third seat was installed in the cargo area and was designed to fold up for use, and was equipped with a seat belt. The only passenger access to the third seat would have been from the cockpit. The kit manufacturer indicated that several builders have designed and built a third seat in the cargo compartment area of their respective airplanes. These seats had been individually designed, as there were no after-market or third-party suppliers of rear seats for the airplane. No maintenance records or construction build records were located for the airplane. No weight and balance data for the airplane was located. According to the manufacturer, the airplane's gross weight was 2,100 pounds if equipped with floats. A calculation of the airplane's estimated weight done by the Safety Board's Investigator-In-Charge, came to an estimated 2,110 pounds without any inclusion of fuel, which indicated that the airplane was overgross at the time of the accident. The airplane appeared to have collided with the ground in a left-wing- and nose-low attitude, an indication of an aerodynamic stall. The airplane was destroyed by a postcrash fire. No preimpact mechanical malfunctions were found during an examination of the wreckage. An examination of data from a GPS receiver found at the crash site revealed that just prior to the accident the airplane was in a descending left turn, having lost 273 feet in the last 6 seconds before impact.

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 during maneuvering flight, which resulted in an aerodynamic stall and uncontrolled descent to the ground. Contributing to the accident was the airplane's overgross weight condition.

Findings

Aircraft	Airspeed - Not attained/maintained
Personnel issues	Aircraft control - Pilot
Aircraft	Maximum weight - Capability exceeded

Factual Information

History of Flight

Maneuvering	Aerodynamic stall/spin
Maneuvering	Loss of control in flight (Defining event)
Uncontrolled descent	Collision with terr/obj (non-CFIT)

HISTORY OF FLIGHT

On July 12, 2008, about 1100 Alaska daylight time, an amphibious float-equipped kit built experimental Iversen Glastar SH-4 airplane, N212DR, was destroyed by impact and postimpact fire when it collided with terrain, about 35 miles west of Kenai, Alaska. The airplane was being operated as a visual flight rules (VFR) local area personal flight under Title 14, CFR Part 91, when the accident occurred. The airplane was operated by the pilot. The private certificated pilot, and the two passengers, received fatal injuries. Visual meteorological conditions prevailed in the area of the accident. The flight originated at a private airstrip near Kenai about 1030, and no flight plan was filed.

Federal Aviation Administration (FAA) personnel notified the National Transportation Safety Board (NTSB) investigator-in-charge (IIC) that burning wreckage of an airplane was spotted by over-flying aircraft about 1110. Search and rescue personnel responded to the scene, as well as Alaska State Troopers from Soldotna, Alaska.

The Alaska State Troopers reported that the pilot maintained a summer residence near Kenai, and the passengers were acquaintances from out-of-state.

PERSONNEL INFORMATION

Pilot Information

The pilot held a private pilot certificate with airplane single-engine land, single-engine sea, and instrument airplane ratings. In addition, he held a repairman certificate for the accident airplane. His most recent second-class medical certificate was issued on March 21, 2008, and contained the limitation that he must have available glasses for near vision.

No personal flight records were located for the pilot, and the aeronautical experience listed on page 3 of this report was obtained from Federal Aviation Administration (FAA) airmen records on file in the Airman and Medical Records Center in Oklahoma City. On the pilot's application for medical certificate, dated March 21, 2008, the pilot indicated that his total aeronautical experience was about 2,710 hours, of which 40 were in the previous 6 months.

AIRCRAFT INFORMATION

The airplane was built by the pilot from a kit, and was issued an FAA experimental airworthiness certificate with experimental limitations on June 26, 1997. The airplane had an aluminum tube frame that formed the structure from the firewall to the aft end of the baggage area. The frame was covered by fiberglass composite that formed the fuselage and vertical stabilizer. The wings, rudder, and horizontal stabilizer were all metal. The pilot installed a 180 horsepower engine.

The airplane kit was designed by the manufacturer with two side-by-side seats in the cockpit. A large cargo area was behind the two front seats, with a weight limitation of 250 pounds. When the pilot applied for an airworthiness certificate in 1997, the application noted that the airplane was equipped with 2 seats.

According to a neighbor who maintained a hangar next to the pilot, and who was also building a Glastar airplane, the accident airplane was equipped with a third seat, designed and built by the pilot. The third seat was installed in the cargo area, and was designed to fold up for use, and was equipped with a seat belt. Access to the cargo area could be gained via a side compartment door on the left side of the fuselage, but it would not have been large enough for use by a passenger. The only passenger access to the third seat would have been from the cockpit.

The kit manufacturer indicated that several builders of Glastar airplanes have designed and built a third seat in the cargo compartment area of their respective airplanes. These seats had been individually designed, as there were no after market or third party suppliers of rear seats for the airplane.

No maintenance records or construction build records were located for the airplane. No weight and balance data for the airplane was located. The pilot's neighbor reported that the airplane received an annual inspection in June, 2008.

According to the Alaska State Troopers, the pilot's weight was 170 pounds. The front seat passenger weighed 185 pounds, and the rear seat passenger weighed 255 pounds.

The airplane was equipped with 2200 series amphibious floats from the Montana Float Company. The average empty weight for an airplane on floats was estimated by the float manufacturer as about 1,500 pounds. According to the manufacturer of the kit, the airplane's gross weight was 2,100 pounds if equipped with floats. The NTSB IIC calculated the airplane's gross weight at the time of the accident as approximately 2,110 pounds, without including any weight for fuel.

METEOROLOGICAL INFORMATION

The closest weather reporting facility was Big River Lakes, Alaska, which was about 9 miles

south-southwest of the accident site. At 1050, an aviation routine weather report (METAR) was reporting, in part: Wind, calm; visibility, 40 statute miles; clouds and sky condition, 6,000 feet overcast; temperature, 55 degrees F; dew point, 51 degrees F; altimeter, 30.10 inHg.

COMMUNICATIONS

There were no reports of communication with the accident airplane.

WRECKAGE AND IMPACT INFORMATION

The National Transportation Safety Board IIC, and an FAA inspector from the Anchorage Flight Standards District Office, Anchorage, Alaska, examined the wreckage at the accident site on July 15.

A path of wreckage debris and ground scars from the first observed point of ground contact to the wreckage point of rest was on a magnetic heading of 120 degrees. (All heading/bearings noted in this report are oriented using magnetic north.) The first disruption of the ground was found about 60 feet from the wreckage point of rest. A second and larger disruption of the ground was found about 30 feet beyond the first impact point. The second area of disruption was about 6 feet in diameter, and contained portions of broken Plexiglas. The airplane came to rest to the left of the two impact points, with the nose of the airplane pivoted to the left, oriented on a 340 degree heading.

All of the airplane's major components were found at the main wreckage area. The airplane came to rest in an upright position, with the left wing displaced slightly forward of its normal orientation to the fuselage, and was lying over the left float. The aileron and flap remained attached to the wing, and the left flap appeared to be drooped about 10 to 15 degrees. The leading edge of the left wing was crushed and flattened in an aft direction, from about midspan to the wingtip. The inboard end of the wing, and the inboard fuel tank, was consumed by fire. The outboard fuel tank contained a small amount of fuel.

The right wing was displaced aft about 45 degrees from its normal orientation to the fuselage. The inboard portion of the right wing was resting on top of the aft portion of the fuselage. The aileron and flap remained attached to the wing, and the right flap appeared to be up. The lead edge at the outboard end of the wing was flattened and crushed aft, with upward curling of the wingtip. The inboard end of the wing was fire damaged, but the inboard fuel tank was intact and contained fuel. The outboard fuel tank contained a small amount of fuel.

The vertical stabilizer, rudder, and horizontal stabilizer had minor damage, and the empennage was displaced slightly to the right of the main cockpit/cabin area. The elevator trim tab was displaced slightly downward.

The entire cockpit, baggage area, and fuselage to the vertical stabilizer, was incinerated by a postcrash fire. Both wing lift struts remained attached to their respective wing and fuselage

attach points.

The wheel portion of the amphibious floats were the "up" position. The left float was broken from its fuselage attach points, and was to the left and parallel to the fuselage. The nose of the left float assembly was bent upward, about 90 degrees, and damaged by fire. The aft end of the left float was damaged by fire. The right float was broken from its fuselage attach points, and was forward and at a right angle to the nose of the airplane. The nose of the right float was crushed aft and upward, and consumed by fire.

Due to the impact and postimpact fire damage, the flight controls could not be moved by their respective control mechanisms. The continuity of the flight control cables was established from the cabin/cockpit area to all flight controls.

The propeller assembly remained connected to the engine crankshaft. One propeller blade was bent aft, and had leading edge gouging and torsional twisting. The outboard end of the blade tip was fractured. The second propeller blade was straight, but had slight chordwise scratching.

The engine had impact and fire damage to the underside and front portion of the engine. The crankshaft could be moved by the propeller, and continuity of the drive train was established at the tachometer drive fitting on the accessory case when the propeller was moved by hand. The exhaust tube and muffler were flattened, and had malleable bending and folding that produced sharp creases that were not cracked or broken along the crease.

The engine's 4 top massive center electrode sparks plugs were examined, and were dry with no unusual combustion signatures.

The carburetor received impact damage, and only the aft and right side was visible under the engine. The engine control cables were either attached, or broken, at their respective carburetor control arms.

MEDICAL AND PATHOLOGICAL INFORMATION

A postmortem examination of the pilot was conducted under the authority of the Alaska State Medical Examiner, 4500 South Boniface Parkway, Anchorage, Alaska, on July 14, 2008. The cause of death for the pilot was attributed to multiple blunt force injuries.

A toxicological examination was conducted by the FAA's Civil Aeromedical Institute (CAMI) on August 27, 2008, and revealed the presence of 0.33 ug/ml of Cyanide in the pilot's blood. No carbon monoxide was detected in the pilot's blood. The presence of Ibuprofen was detected in his urine.

FIRE

An extensive postcrash fire consumed the main fuselage.

TESTS AND RESEARCH

A Garmin 496 GPS unit was found at the scene by law enforcement investigators. The unit was submitted to the NTSB's Vehicle Recorder Division for examination of the flight track data.

The examination revealed that after departure, the airplane's flight track crossed the Cook Inlet, westbound. The airplane then made a loop around the west shore of Big River Lakes, and then flew north toward the accident site. During the last portion of the flight, the airplane made a descending left turn, just above the crash site.

In the last 6 seconds before the flight track data ceased being recorded, the airplane descended from 1,428 feet to 1,155 feet msl. The accident site elevation was about 1,125 feet msl.

A copy of the Vehicle Recorder Division Specialist's report is contained in the public docket of this accident.

ADDITIONAL INFORMATION

The Safety Board did not take custody of the airplane wreckage.

Pilot Information

Certificate:	Private	Age:	60, Male
Airplane Rating(s):	Single-engine land; Single-engine sea	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 2 With waivers/limitations	Last FAA Medical Exam:	March 21, 2008
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	2710 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Iversen	Registration:	N212DR
Model/Series:	Glaster SH-4	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	Yes
Airworthiness Certificate:	Experimental (Special)	Serial Number:	5017
Landing Gear Type:	Tricycle; Float	Seats:	3
Date/Type of Last Inspection:	June 1, 2008 Annual	Certified Max Gross Wt.:	2100 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:		Engine Manufacturer:	Lycoming
ELT:		Engine Model/Series:	O-360 A1A
Registered Owner:		Rated Power:	180 Horsepower
Operator:		Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	PALV,39 ft msl	Distance from Accident Site:	9 Nautical Miles
Observation Time:	10:50 Local	Direction from Accident Site:	200°
Lowest Cloud Condition:		Visibility	40 miles
Lowest Ceiling:	Overcast / 6000 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	/	Turbulence Type Forecast/Actual:	/
Wind Direction:		Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.1 inches Hg	Temperature/Dew Point:	13°C / 11°C
Precipitation and Obscuration:			
Departure Point:	Kenai, AK	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	10:30 Local	Type of Airspace:	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	2 Fatal	Aircraft Fire:	On-ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	3 Fatal	Latitude, Longitude:	60.878334,-152.081665

Administrative Information

Investigator In Charge (IIC):	Erickson, Scott
Additional Participating Persons:	Victor Hutchings; FAA-AL-ANC FSDO 03; Anchorage, AK
Original Publish Date:	April 15, 2009
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=68439

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The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).