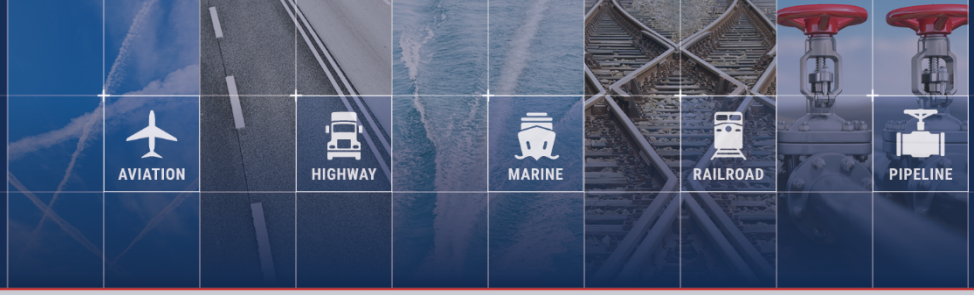

Aviation Investigation Factual Report

Location:	Meeteetse, Wyoming	**Accident Number:**	DEN02GA097
Date & Time:	August 16, 2002, 08:30 Local	**Registration:**	N71AT
Aircraft:	Arctic Aircraft Corp. S-1B2	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal, 1 Serious
Flight Conducted Under:	Public aircraft		

Factual Information

HISTORY OF FLIGHT

On August 16, 2002, approximately 0830 mountain daylight time, an Arctic Interstate S-1B2, N71AT, operated by Sky Aviation of Worland, Wyoming, under contract to the Wyoming Game and Fish Department, was destroyed when it impacted the terrain about 10 miles southeast of Meeteetse, Wyoming. The commercial pilot was fatally injured, and his passenger received serious injuries. Day visual meteorological conditions prevailed, and flight following was being utilized for the public use airplane being operated under Title 14 CFR Part 135. The flight originated in Worland, Wyoming, approximately 0615.

The purpose of the flight was to count antelope. The pilot made position reports every 20 minutes. His last report was at 0720. When the pilot failed to report at 0840 and 0900, the operator was notified and an aerial search was initiated. The operator flew to the last known position, flew north and, with the aid of a weak ELT signal, located the wreckage approximately 0930. There were no known witnesses to the accident.

According to a telephone conversation and a written statement submitted by the surviving passenger, he could not recall any details of the accident, but he said the flight had been routine and wind was not a factor. They had been flying in Hunt Area 77, Count Block 5, and were en route to Count Block 2. He remembered looking at his watch and it was 0811. He was "actively classifying a group of antelope," and storing each group as a waypoint in the onboard GPS (Global Positioning System) unit. He was also tape recording his observations. He said that after classifying the final group of antelope as waypoint 222, "you can hear me grunt/groan all of a sudden, likely from the impact." A copy of the tape was reviewed. The tape ended abruptly, and the grunt/groan or sounds of impact described by the passenger were not heard, although engine noise was discernible in the background.

PERSONNEL INFORMATION

The 45-year-old pilot held airplane single/multiengine land and instrument ratings on both his commercial and flight instructor certificates, dated June 7, 2002, and May 4, 2001, respectively. His pilot certificate contained the following restriction: "Holder does not meet the pilot-in-command flight experience of ICAO." The pilot also held a second class airman medical certificate, dated August 2, 2001, with no restrictions or limitations. When he made application for his medical certificate, he estimated his total flight time at 2,300 hours, including 350 hours accrued during the previous six months.

The pilot was hired by Sky Aviation in May of 2002. According to Sky Aviation records, the pilot had logged 2,500 hours in single-engine airplanes, 111 hours in multiengine airplanes, and 62

hours at night. He had also logged 485 cross-country hours, and 16 and 12 hours under simulated and actual instrument conditions, respectively.

On May 10 and 11, the pilot received the following ground instruction (in hours): Hazardous Materials Identification, 1.4; Cold Weather Operations, 3.0; Airport Operations, 1.5; Emergency Operations, 3.6.

On May 11, 2002, the pilot was administered the following multiple choice tests: FAR Part 135, FAR Part 91, Weight and Balance for the Interstate (Arctic) S-1B2, Cessna 172N, Cessna 185, and Cessna 210N; Navigation; Air Traffic Control; Meteorology; and Operations to Avoid. Incorrect answers were not marked and no numerical or written grades were posted but, according to a statement at the bottom of each test, "All incorrect answers were reviewed to a satisfactory understanding."

Flight instruction began on May 2. On May 13, after receiving 6.5 hours of flight instruction, the pilot successfully passed an FAR135.293/FAR 135.299 flight check. The airplane used was an Arctic Interstate S1B-1. On May 15, the pilot received an additional 1.6 hours of flight instruction. He began making charter flights on May 17. On July 8, the pilot received 1.3 hours of transition training in the Arctic Interstate S1B-2. According to a Sky Aviation spokesman, the pilot required "more training" than other newly hired pilots.

AIRCRAFT INFORMATION

N71AT (s/n 1022), a model Interstate S-1B2, was manufactured by the Arctic Aircraft Company in June 1982. It was equipped with a Textron Lycoming O-320-B2B engine (s/n L-12772-39A), rated at 180 horsepower, and a McCauley 1A175GM/824(4)(1) 2-blade, all-metal, fixed pitch propeller.

According to the airplane's maintenance records, the last annual inspection was accomplished on August 2, 2002, at a tachometer time of 1,103.2 hours. At that time, the airframe and engine had accrued 3,895.5 and 6,667.0 hours, respectively. The engine was last overhauled on October 30, 1997, at a tachometer time of 305.9 hours, and had accrued 1,399.8 hours since major overhaul. It was installed in N71AT on August 1, 2001, and the propeller was installed new on August 8, 2001, both at a tachometer time of 747.7 hours.

METEOROLOGICAL INFORMATION

The following METAR (aviation routine weather report) was recorded at Cody, Wyoming, located 27 miles north-northwest of the accident site, at 0935: wind, calm; visibility, (greater than) 10 statute miles; sky condition, clear; temperature, 13 degrees C.; dew point, 5 degrees C.; altimeter, 29.85.

WRECKAGE AND IMPACT INFORMATION

The airplane was found on a small hill, within sight of State Highway 50, lying on its back. The nose was pointed in the direction of 270 degrees magnetic. Rescuers reported that when they arrived on scene, the airplane nose was in the ground and the tail was standing straight up. The airplane was pulled over on its back to facilitate removal of the victims. There was a 65 degree crush line between the engine and the fuselage, and a 65 degree inverted-V separation of the engine and the firewall. All airplane components were accounted for, and control continuity was established from each control surface to its respective cockpit control. The flap handle was in the first notch position. According to the Arctic Aircraft Company, there are three flap settings: flaps up, takeoff flaps (first notch, 25 degrees), and landing flaps (second notch, 50 degrees). The stall speed at gross weight in the takeoff flap configuration is 42 mph.

There was slight buckling of the fuselage aft of the rear seat passenger. From that point aft to the empennage, the fuselage was undamaged. The leading edges of both wings bore accordion-type compression damage. Comparatively, the left wing sustained more damaged than the right: the outboard wing panel was bent up and aft, and the fuel tank had been torn out of the bottom of the wing and was ejected forward about 12 feet. The passenger's helmet and garment bag was found in the baggage compartment.

The propeller was separated from the flange. One blade was bent aft midspan about 20 degrees. Some of the black paint on the cambered surface had been buffed off, exposing bare metal and numerous 90-degree chordwise scratches. The leading edge of the other blade was buffed 8 inches from the hub. It was relatively straight but twisted toward low pitch near the tip, which was bent forward slightly. The left half of the propeller flange was bent aft.

Examination of the cockpit revealed the following instrument readings: altimeter, 5,340 feet, set to 29.78; Hobbs meter, 0323 hours; ammeter, slight charge; airspeed indicator, 0; tachometer, 0. The magnetos were on both, but fire personnel had turned off the master and alternator switches.

MEDICAL AND PATHOLOGICAL INFORMATION

It was requested that an autopsy be performed on the pilot, but it was never done. Instead, the Park County Coroner's Office issued a "death report," noting that although the pilot was "wearing a helmet and was restrained in a harness," X-rays revealed a "skull fracture and air in the anterior skull, pneumothorax, and possible rib fractures. A toxicological screen, performed by Wyoming's Public Health Laboratory in Cheyenne (#305790), was negative for ethyl alcohol and drugs.

ADDITIONAL INFORMATION

The wreckage was released to the operator's insurance company on August 16, 2002.

Other than the Federal Aviation Administration, there were no other parties to this investigation.

Pilot Information

Certificate:	Commercial	**Age:**	45,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Front
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	August 2, 2001
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	May 13, 2002
Flight Time:	2785 hours (Total, all aircraft), 96 hours (Total, this make and model), 2550 hours (Pilot In Command, all aircraft), 118 hours (Last 90 days, all aircraft), 52 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Arctic Aircraft Corp.	**Registration:**	N71AT
Model/Series:	S-1B2	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	1022
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	August 2, 2002 Annual	**Certified Max Gross Wt.:**	1650 lbs
Time Since Last Inspection:	34 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	3930 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	Installed, activated, aided in locating accident	**Engine Model/Series:**	O-320-B2B
Registered Owner:	Sky Aviation Corp.	**Rated Power:**	160 Horsepower
Operator:	Wyoming Game and Fish Department	**Operating Certificate(s) Held:**	On-demand air taxi (135)
Operator Does Business As:		**Operator Designator Code:**	BZHA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	COD,5098 ft msl	**Distance from Accident Site:**	35 Nautical Miles
Observation Time:	07:35 Local	**Direction from Accident Site:**	320°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/ None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.85 inches Hg	**Temperature/Dew Point:**	13°C / 5°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Worland, WY (WRL)	**Type of Flight Plan Filed:**	Company VFR
Destination:	Worland, WY (WRL)	**Type of Clearance:**	None
Departure Time:	06:30 Local	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Serious	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal, 1 Serious	**Latitude, Longitude:**	44.08889,-108.746391

Administrative Information

Investigator In Charge (IIC):	Scott, Arnold
Additional Participating Persons:	Michael J Maglione; FAA Flight Standards Field Office; Casper, WY
Report Date:	January 7, 2003
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=55522