



National Transportation Safety Board Aviation Accident Factual Report

Location:	Star, ID	Accident Number:	SEA01TA083
Date & Time:	05/01/2001, 1030 MDT	Registration:	N49SJ
Aircraft:	de Havilland DHC-6-300	Aircraft Damage:	Substantial
Defining Event:		Injuries:	2 None
Flight Conducted Under:	Public Aircraft		

HISTORY OF FLIGHT

On May 1, 2001, approximately 1030 mountain daylight time, a deHavilland DHC-6-300, N49SJ, registered to Department of Interior, Office of Aircraft Services (OAS) and operated by the Bureau of Land Management as a public use flight, was substantially damaged when the aircraft veered off the runway at Snake River Skydiving airport, Star, Idaho, and collided with the terrain. Visual meteorological conditions prevailed and no flight plan was filed. Neither the commercial pilot nor the passenger were injured. The flight originated from Boise, Idaho, approximately 0933.

Personnel from OAS reported that the purpose of the flight was for smoke jumper training. After the smoke jumpers (12 jumpers) exited, the pilot landed the aircraft at the Snake River Skydiving airport.

The pilot reported during an interview, that prior to landing, he confirmed that the nose wheel steering control was centered, and that the runway was clear of cows. He also noted that the windsock at the end of the runway was indicating a crosswind. The aircraft touched down on the grass overrun surface and rolled about 300 feet to the start of the pavement surface without incident. The pilot reported that he noted that the airspeed was about 70 knots at the beginning of the pavement surface and that the aircraft was tracking straight. The pilot applied reverse power at about 60 knots and the aircraft began to veer to the left. The pilot reported that up to this point he was using rudder and aileron inputs, however now they were not effective and the aircraft continued to arc to the left. The pilot then transferred over to the nose wheel steering tiller control and applied pressure to the right. The pilot continued to increase pressure to the nose wheel steering tiller all the way to the right when he heard a "planking sound," or a "clink." The aircraft then exited the side of the runway and collided with the terrain.

DAMAGE TO AIRCRAFT

The nose gear sheared off and the left engine propeller contacted the ground. A cow located off

to the side of the runway was also struck at some point along the ground track. Maintenance personnel inspecting the aircraft reported that the nose wheel steering tiller control cable was broken.

WRECKAGE AND IMPACT INFORMATION

Measurements were taken of the ground signatures that remained visible on the grass overrun surface and the skid marks found on the runway pavement. Ground disturbance on the grass indicated that the aircraft touched down about 330 feet prior to the beginning of the pavement surface. About 270 feet after the beginning of the pavement surface, rubber marks were identified down the center of the runway. About 200 feet further, the left arc begins and travels another 200 feet before the aircraft exits the side of the runway. The aircraft traveled through the dirt along the side of the runway for about 150 feet until the nose wheel separated and the aircraft slid to a stop.

TESTS AND RESEARCH

The upper and lower torque arms, the entire length of nose wheel steering control cable and steering collar were sent to the National Transportation Safety Board Materials Laboratory in Washington DC for examination. The upper and lower torque arms separated at the hinge portion of the lower torque link. The metallurgist reported that the fracture face revealed ductile dimple features typical of overstress separation. The collar was not cracked. The steering cable was examined with a scanning electron microscope (SEM). The examination revealed that the end of many wires exhibited fractures on a flat plane that was perpendicular to the longitudinal axis, typical of a fatigue crack. About 90 percent of the flat areas extended through the fracture face. The metallurgist reported that approximately 50 percent of the wires from the cable contained fatigue cracking.

ADDITIONAL DATA/INFORMATION

The flight manual for the DHC-6 approach procedures indicate that the nose wheel steering lever is to be centered and aligned with the index marks. For normal landing procedures, the manual indicates that after touch down on the main wheels, brakes are to be applied after the nose wheel makes contact. Reverse power as required and nose wheel steering as required.

Crosswind landing procedures indicate that:

"The preferred technique requires that the upwind wing be lowered during the approach with sufficient opposite rudder applied to align the aircraft with the runway. As airspeed decreases during the flare and rollout, both of these control applications must be increased. The nose wheel should be held on the ground during the ground roll, along with "into wind" aileron. Directional control should be maintained with rudder. Nose wheel steering and brakes should be used only at taxi speeds."

The aircraft wreckage was released to the Air Safety Investigator participant from the Office of Aircraft Services on June 14, 2001. The upper and lower torque arms, nose wheel steering cable, collar and steering actuator assembly were released to the same investigator on September 6, 2001.

Pilot Information

Certificate:	Airline Transport; Flight Instructor; Commercial	Age:	43, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane	Toxicology Performed:	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	04/24/2001
Occupational Pilot:		Last Flight Review or Equivalent:	01/04/2001
Flight Time:	12800 hours (Total, all aircraft), 2128 hours (Total, this make and model), 12800 hours (Pilot In Command, all aircraft), 45 hours (Last 90 days, all aircraft), 10 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	de Havilland	Registration:	N49SJ
Model/Series:	DHC-6-300	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	423
Landing Gear Type:	Tricycle	Seats:	11
Date/Type of Last Inspection:	11/30/2000, 100 Hour	Certified Max Gross Wt.:	12500 lbs
Time Since Last Inspection:	42 Hours	Engines:	2 Turbo Prop
Airframe Total Time:	8004 Hours at time of accident	Engine Manufacturer:	P&W
ELT:	Installed, not activated	Engine Model/Series:	PT6A-27
Registered Owner:	US Department of Interior	Rated Power:	620 hp
Operator:	Bureau of Land Management	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	BOI, 2868 ft msl	Distance from Accident Site:	16 Nautical Miles
Observation Time:	1056 MDT	Direction from Accident Site:	110°
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	15 knots / 22 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	310°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.19 inches Hg	Temperature/Dew Point:	9° C / 4° C
Precipitation and Obscuration:			
Departure Point:	Boise, ID (BOI)	Type of Flight Plan Filed:	None
Destination:	Star, ID	Type of Clearance:	None
Departure Time:	0933 MDT	Type of Airspace:	Class G

Airport Information

Airport:	Snake River Skydiving Airport	Runway Surface Type:	Asphalt
Airport Elevation:	2550 ft	Runway Surface Condition:	Rough
Runway Used:	060	IFR Approach:	None
Runway Length/Width:	4000 ft	VFR Approach/Landing:	Full Stop; Traffic Pattern

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	1 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	Debra J Eckrote
Additional Participating Persons:	Robert L Rountree; FAA-FSDO; Boise, ID Larry Brosnan; DOI - Office of Aircraft Services; Boise, ID
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .