Aviation Investigation Final Report

Location:	Anchorage, Alaska	**Accident Number:**	ANC07LA029
Date & Time:	April 17, 2007, 16:17 Local	**Registration:**	N93V
Aircraft:	de Havilland DHC-2	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

Following a rebuild of the accident airplane, the pilot and the mechanic who rebuilt the airplane conducted a preflight inspection, to include a check of the flight controls, and were satisfied that the airplane appeared airworthy. During the takeoff-initial climb, the airplane was about 150 feet agl at 70 mph airspeed when it suddenly rolled about 90 degrees to the right. The pilot applied left aileron and left rudder control, but the airplane did not respond. He retarded the engine power to idle and pushed forward on the control yoke to maintain airspeed. The airplane's right wing struck the runway and the pilot applied full engine power. The left wing struck the ground, and the airplane landed hard on the main landing gear. The airplane then departed the runway area and collided with a ditch. A postaccident examination of the airplane and flight controls revealed that the chain control linkage, within the control yoke, was misrouted at the base of the control column, thereby reversing the aileron activation. Standard preflight inspection protocols for fixed-wing aircraft require that the pilot ensure that the ailerons deflect in the proper direction when the control yoke is moved to the left and right roll positions.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The improper installation/reversal of the aileron flight control system by other maintenance personnel, and the pilot's inadequate preflight inspection, which resulted in a loss of control during takeoff initial climb.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
1. (C) FLT CONTROL SYST,AILERON CONTROL - REVERSED
2. (C) MAINTENANCE,INSTALLATION - IMPROPER - OTHER MAINTENANCE PERSONNEL
3. (C) AIRCRAFT PREFLIGHT - INADEQUATE - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: EMERGENCY LANDING AFTER TAKEOFF

Findings
4. TERRAIN CONDITION - RUNWAY

Factual Information

On April 17, 2007, about 1617 Alaska daylight time, a wheel-equipped de Havilland DHC-2 airplane, N93V, sustained substantial damage when it collided with the runway and a ditch following a loss of control during takeoff-initial climb at the Ted Stevens Anchorage International Airport, Anchorage, Alaska. The airplane was being operated as a visual flight rules (VFR) local area maintenance flight under Title 14, CFR Part 91, when the accident occurred. The airplane was operated by the pilot. The commercial certificated pilot and the sole passenger were not injured. Visual meteorological conditions prevailed, and no flight plan was filed.

During a telephone conversation with the National Transportation Safety Board (NTSB) investigator-in-charge (IIC), on April 18, the pilot reported that he was departing runway 14. The accident flight was the first flight after the airplane had been rebuilt by a mechanic, who was the passenger. The pilot said both he and mechanic examined the airplane's engine and flight controls before the flight, and both were satisfied that it was ready to fly. After being cleared for takeoff by the Anchorage Air Traffic Control Tower (ATCT) controller, the pilot said he applied full power and lifted off. The airplane was about 150 feet at 70 mph airspeed when the it suddenly rolled about 90 degrees to the right. The pilot applied left aileron and left rudder control, but the airplane did not respond. He retarded the engine power to idle and pushed forward on the control to maintain airspeed. The airplane's right wing struck the runway and the pilot applied full engine power. The left wing struck the ground, and the airplane landed hard on the main landing gear. The airplane then departed the runway area and collided with a ditch.

At 1632, a special weather observation at the Anchorage International Airport was reporting, in part: Wind, 150 degrees at 16 knots, gusts to 22 knots; visibility, 10 statute miles; clouds and sky condition, few at 8,000 feet, 11,000 feet scattered, 20,000 feet broken; temperature, 46 degrees F; dew point, 28 degrees F; altimeter, 29.90 inHg.

A Federal Aviation Administration (FAA) airworthiness inspector, Anchorage Flight Standards District Office (FSDO), reported that on April 27, she and another FAA inspector examined the flight control system of the accident airplane, and that of another DHC-2 airplane. The examination revealed that the control system movements of the accident airplane were the opposite of the second airplane. The inspector then removed the entire control yoke mechanism of the accident airplane for a closer inspection.

On May 4, the NTSB IIC, and the FAA inspectors examined the accident airplane control yoke in the offices of the FAA FSDO. The examination revealed that the chain control linkage for aileron control, within the pilot's control yoke, was misrouted at the base of the control column, thereby reversing the aileron deflection. With the reversal, when pilot inputs on the control

yoke commanded a left roll, the ailerons would roll the airplane to the right, and vice versa for right roll inputs. Standard preflight inspection criteria for all fixed-wing aircraft require the pilot to visually inspect the ailerons for proper deflection when the control yoke is moved to the left and right roll positions.

Pilot Information

Certificate:	Commercial	**Age:**	26,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:**	No
Medical Certification:	Class 2 Without waivers/limitations	**Last FAA Medical Exam:**	January 1, 2007
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	March 1, 2007
Flight Time:	4760 hours (Total, all aircraft), 970 hours (Total, this make and model), 4600 hours (Pilot In Command, all aircraft), 80 hours (Last 90 days, all aircraft), 40 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	de Havilland	**Registration:**	N93V
Model/Series:	DHC-2	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	1403
Landing Gear Type:	Tailwheel	**Seats:**	7
Date/Type of Last Inspection:	April 1, 2007 Annual	**Certified Max Gross Wt.:**	5370 lbs
Time Since Last Inspection:	1 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	10641 Hrs at time of accident	**Engine Manufacturer:**	Pratt & Whitney
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	R-985-14B
Registered Owner:	Jerry Schultz	**Rated Power:**	450 Horsepower
Operator:	Jonathan L. Miller	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	PANC,152 ft msl	**Distance from Accident Site:**	
Observation Time:	16:32 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Few / 8000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	Broken / 20000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	16 knots / 22 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	150°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.89 inches Hg	**Temperature/Dew Point:**	8°C / -2°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Anchorage, AK (PANC)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	VFR
Departure Time:	16:17 Local	**Type of Airspace:**	

Airport Information

Airport:	Anchorage International PANC	**Runway Surface Type:**	Asphalt
Airport Elevation:	152 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	14	**IFR Approach:**	None
Runway Length/Width:	11584 ft / 150 ft	**VFR Approach/Landing:**	None

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:**	61.174446,-149.996383

Administrative Information

Investigator In Charge (IIC):	Erickson, Scott
Additional Participating Persons:	Sylvia Villa; FAA-AL-ANC FSDO 03
Original Publish Date:	December 20, 2007
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=65603