Aviation Investigation Final Report

Location:	JUNEAU, Alaska	**Accident Number:**	ANC99LA052
Date & Time:	April 27, 1999, 14:09 Local	**Registration:**	N93311
Aircraft:	Cessna 185	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 Serious, 1 Minor
Flight Conducted Under:	Part 135: Air taxi & commuter - Non-scheduled		

Analysis

The amphibious airplane was about 300 feet above the ground, on short final to land on the runway, when the engine quit. The airplane landed in soft mud with the wheels extended, and flipped over. Postaccident examination revealed fuel in both wing tanks. Bench testing revealed the engine driven fuel pump would not pump fuel, and drew air into the pump when primed and operated. Disassembly did not reveal any blockages, damaged seals, or sources of the air leak.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The failure of the engine driven fuel pump for undetermined reasons. Factors associated with this accident were the low altitude at which the failure occurred resulting in task overload of the pilot, and landing the amphibious airplane in the swampy terrain short of the runway with the wheels extended.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - MECH FAILURE/MALF
Phase of Operation: APPROACH - VFR PATTERN - FINAL APPROACH

Findings
1. (C) FUEL SYSTEM,PUMP - INOPERATIVE
2. REASON FOR OCCURRENCE UNDETERMINED

Occurrence #2: NOSE OVER
Phase of Operation: EMERGENCY DESCENT/LANDING

Findings
3. (F) TERRAIN CONDITION - SWAMPY
4. (F) ALTITUDE - LOW
5. (F) EXCESSIVE WORKLOAD (TASK OVERLOAD) - PILOT IN COMMAND
6. (F) WHEELS DOWN LANDING IN WATER - PERFORMED - PILOT IN COMMAND

Factual Information

On April 27, 1999, at 1409 Alaska daylight time, an amphibious float equipped, Cessna 185 airplane, N93311, sustained substantial damage when it landed short of runway 26 at the Juneau International Airport, Juneau, Alaska. The commercial pilot received minor injuries. The passenger received serious injuries. The flight was operated under 14 CFR Part 135 as an on-demand air taxi by Ward Air, Inc., of Juneau. The flight departed Hawk Inlet, Alaska, for Juneau at 1359. Visual meteorological conditions prevailed at the time of the accident, and a company VFR flight plan was on file.

The pilot told two FAA inspectors at the scene that the engine suddenly quit when the airplane was 300 feet above the ground, during final approach to land. The pilot indicated that he turned on the electric fuel pump, but the engine did not restart. He also stated he retracted the flaps to attempt to increase the glide distance. The airplane landed in soft mud short of the runway, and nosed over. The pilot said that both occupants were wearing shoulder harnesses at the time of the accident. The pilot repeated these statements to the NTSB investigator-in-charge (IIC) during a telephone interview on April 28.

The passenger stated to the IIC he was not wearing a shoulder harness, and was not aware that there was one.

Initial inspection of the airplane by FAA inspectors revealed that the engine crankshaft was intact, and fuel was present in both wing tanks. The flaps were extended to 30 degrees, the landing gear handle was down, and the wheels were extended. The FAA inspectors applied power to the electric boost pump and confirmed that it operated normally. No other mechanical anomalies were noted with the engine.

The engine driven fuel pump, Continental Motors (TCM) part number 64905A6R, was flow tested on a test bench under the direction of the NTSB IIC on May 3, 1999. The pump repeatedly would not maintain a prime, had air drawn into the system, and would not pump fuel. Disassembly of the pump did not reveal any visible passage or orifice blockages, nor torn gaskets or seals. A telephone conversation by the NTSB IIC with the TCM chief accident investigator on June 15 revealed that the likely source of air into the pump was either the forward fuel seal, or a blocked vapor tower jet.

Additionally, the Emergency Locator Transmitter (ELT), Sharc-7 model # 7J4-193, did not operate during the accident. Inspection of the ELT at the NTSB laboratory on June 10 revealed that the ELT was installed in the airplane in November 1998. The installed battery pack was manufactured in February 1999, and installed into the ELT on an unknown date between February 1999 and April 27, 1999. One of the internal battery terminal connectors was found fractured, and disconnected. Microscopic examination at the NTSB materials laboratory

revealed tool markings on the connector consistent with those left by pliers. Installation of the adjacent battery required bending the connector and wire out of the way.

Pilot Information

Certificate:	Commercial	**Age:**	27,Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	**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 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	April 16, 1999
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	2000 hours (Total, all aircraft), 600 hours (Total, this make and model), 1660 hours (Pilot In Command, all aircraft), 3 hours (Last 90 days, all aircraft), 3 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N93311
Model/Series:	185 185	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	18503217
Landing Gear Type:	Amphibian; Float	**Seats:**	4
Date/Type of Last Inspection:	March 7, 1999 Annual	**Certified Max Gross Wt.:**	3525 lbs
Time Since Last Inspection:	80 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	9258 Hrs	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	IO-550-FCD
Registered Owner:	ROBERT L. REID	**Rated Power:**	300 Horsepower
Operator:	WARD AIR, INC.	**Operating Certificate(s) Held:**	On-demand air taxi (135)
Operator Does Business As:		**Operator Designator Code:**	HXRA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	JNU ,19 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	13:53 Local	**Direction from Accident Site:**	260°
Lowest Cloud Condition:	Unknown	**Visibility**	10 miles
Lowest Ceiling:	Broken / 6500 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	220°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	9°C / 3°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	HAWK INLET , AK	**Type of Flight Plan Filed:**	Company VFR
Destination:	(JNU)	**Type of Clearance:**	VFR
Departure Time:	13:59 Local	**Type of Airspace:**	Class D

Airport Information

Airport:	JUNEAU INTERNATIONAL JNU	**Runway Surface Type:**	
Airport Elevation:	19 ft msl	**Runway Surface Condition:**	
Runway Used:	26	**IFR Approach:**	None
Runway Length/Width:	8456 ft / 150 ft	**VFR Approach/Landing:**	Forced landing;Full stop;Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Serious	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Serious, 1 Minor	**Latitude, Longitude:**	58.579719,-134.770187(est)

Administrative Information

Investigator In Charge (IIC):	Thomas, Matthew
Additional Participating Persons:	JAMES HETTWER (FAA FSDO); JUNEAU , AK LARRY WEST (FAA FSDO); JUNEAU , AK
Original Publish Date:	June 23, 2000
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=46158