National Transportation Safety Board
Aviation Accident Final Report

Location:	WEBSTER, NH	**Accident Number:**	BFO93FA103
Date & Time:	07/01/1993, 0800 EDT	**Registration:**	N2880K
Aircraft:	CESSNA 180K	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

SHORTLY AFTER TAKEOFF FROM A LAKE, AT ABOUT 40 FEET ABOVE THE LAKE'S SURFACE, THE AIRPLANE STALLED, THEN IMPACTED IN A NOSE DOWN ATTITUDE AND NOSED OVER. POST-ACCIDENT EXAMINATION OF THE AIRFRAME AND ENGINE DID NOT REVEAL ANY ANOMALIES. THE AIRPLANE'S CARGO WEIGHED ABOUT 400 POUNDS. GROSS WEIGHT OF THE AIRPLANE WAS CALCULATED TO BE ABOUT 3450 POUNDS, WHICH WAS ABOUT 630 POUNDS OVER ITS MAXIMUM GROSS WEIGHT LIMIT. ALSO, AN UNDETERMINED AMOUNT OF WATER WAS FOUND IN THE AFT 3 COMPARTMENTS OF THE RIGHT FLOAT.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: THE PILOT'S INADEQUATE PREFLIGHT PLANNING/PREPARATION, HIS FAILURE TO ASSURE PROPER WEIGHT AND BALANCE OF THE AIRCRAFT FOR TAKEOFF, AND HIS FAILURE TO OBTAIN AND/OR MAINTAIN ADEQUATE AIRSPEED, WHICH RESULTED IN A STALL. A POSSIBLE FACTOR RELATED TO THE ACCIDENT WAS: WATER IN THE RIGHT FLOAT.

Findings

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

Findings
1. (C) PREFLIGHT PLANNING/PREPARATION - INADEQUATE - PILOT IN COMMAND
2. (F) LANDING GEAR,FLOAT ASSEMBLY - WATER
3. (C) AIRCRAFT WEIGHT AND BALANCE - EXCEEDED - PILOT IN COMMAND
4. (C) AIRSPEED - INADEQUATE - PILOT IN COMMAND
5. (C) STALL - INADVERTENT - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
6. TERRAIN CONDITION - WATER

Factual Information

HISTORY OF THE FLIGHT

On Thursday, July 1, 1993, at 0800 eastern daylight time, a Cessna 180K floatplane, N2880K, owned, operated, and piloted by Edward Downer of Boscawen, New Hampshire, crashed during takeoff climb from Lake Winnepocket, Webster, New Hampshire. The pilot and passenger were fatally injured. The airplane was destroyed. Visual meteorological conditions prevailed at the time of the accident. A visual flight rules flight plan was not filed for the 578 nautical miles cross country flight destined for Lake Ternay in Quebec, Canada. The flight was conducted under 14 CFR 91.

Several witnesses stated that they saw the airplane takeoff from the lake. One witness, located about a half of a mile north of the accident site, stated that the airplane lifted off the lake and got to about 40 feet above the lake. He stated, "At about 40 feet, the airplane lost some altitude, and then started to climb again. The nose of the airplane went up and the airplane started a left turn. The nose pitched up further and the airplane seemed to pivot around the left wing until the nose of the airplane was pointing towards the lake. The airplane fell to the lake and came to rest upside down."

Another witness located on the east shore of the lake stated, "The airplane seemed to be going a lot slower than the other times I saw it takeoff. Once it was in the air, I thought to myself that it was awfully slow. I did not continue to watch the airplane. The next thing that caught my attention was a loud bang."

PILOT INFORMATION

The private pilot received his single engine sea rating on July 24, 1992. At the time of the accident, the pilot had accumulated about 289 total flight hours, 47 of which were in a floatplane.

AIRPLANE INFORMATION

N2880K was a 1980 year model Cessna 180K floatplane. The airplane's landing gear was removed on June 19, 1992, and the airplane was equipped with Edo Airfloats 249 2870. The addition of the floats was approved by the Federal Aviation Administration (FAA). FAA Form 337, Major Repair and Alteration, states, "This installation [of the floats] is only approved at a maximum gross weight of 2820 LBS...Except for the overall length of the floats, the 249 2870 and the 628 2960 models are functionally the same."

At the time of the accident, according to the current weight and balance document found in the airplane's log books, the airplane's empty weight was 2,147 pounds, and had a useful load of 703 pounds. (See attached weight and balance documents). The center of gravity was listed to be 37.83 inches aft and the moment arm was 81,214.77 pound inches.

Cargo taken out of the airplane was weighed at the accident site using a household scale. The cargo weighed about 387 pounds. (See attached list of cargo). Three blankets, two clothing bags, and two sleeping bags were wet and could not be accurately weighed at the accident site. The wet items' combined weight was approximated to be 70 pounds.

A weight and balance was calculated and the airplane's gross weight at takeoff was about 3,453 pounds and the moment arm was about 151,000 pound inches. This weight exceeded the

airplane's maximum allowable gross weight by 633 pounds. (See attached weight and balance work sheet for parameter values used). According to the Cessna Model 180 Floatplane Owner's Manual Supplement, Center of Gravity Moment Envelope Figure 1 3, the loaded airplane weight and loaded airplane moment exceeded the airplane's prescribed weight and center of gravity limitations. (See attached Cessna Documents). Additionally, due to the exceeded maximum allowable gross weight, take off data and rate of climb data from the Cessna Aircraft Performance charts with 20 degrees of flaps was not available.

WRECKAGE AND IMPACT INFORMATION

The airplane wreckage was examined at the accident site on July 1 and 2, 1993. The examination did not reveal any airframe or engine anomalies. The airplane came to rest upside down in the lake with the tail section and floats visible. A helicopter lifted the airplane out of the lake and placed it on the lake's shore.

All of the airplane's structure was accounted for and remained attached to the fuselage. Control continuity for the surface positions was established. Both the left and the right wing leading edges of the airplane were crushed aft. The flap handle was in the 20 degree position and a visual inspection of the flaps revealed that they were extended about 20 degrees. The tail section was intact. The rudder trim indicator was in the 5 degrees nose left position and a visual inspection of the rudder trim revealed that it was positioned about 5 degrees nose left. The elevator trim indicator was in the 5 degrees nose up position. The engine was pulled away from the firewall and the propeller blades were bent and twisted aft. (See attached engine examination report for more details).

The floats were removed from the airplane to recover the airplane from the lake. Before the floats were removed, control continuity for the water rudder steering system was established. The right float was damaged and broken into two pieces at the forward bulkhead. The aft three compartments in the right float were intact and the rubber balls used as a stopper on the standpipe in each compartment of the right float were in place. An undetermined amount of water was found in the aft three compartments of the right float. The left float was damaged but remained intact. No water was found in the left float.

Some of the airplane's cargo was found lose in the water and in the airplane. A cargo net was found directly behind the pilot and passenger seat connected to the sides of the fuselage. No straps or tie downs restricting cargo movement were evident. The cargo was collected and weighed. (See AIRPLANE INFORMATION section for cargo weight).

During the retrieval of the airplane from the lake, several holes were punched in the wing and the fuel tanks were breached. Approximately 66 to 76 gallons of fuel were drained from the airplane's fuel tanks. Lake water was present in the drained fuel. Evidence of fuel could be seen on the surface of the lake near the accident site.

MEDICAL AND PATHOLOGICAL INFORMATION

The autopsy was performed by Dr. James A. Kaplan, Deputy Chief Medical Examiner, at the Office of the Chief Medical examiner on July 2, 1993. The autopsy revealed no evidence of physical incapacitation or impairment.

The toxicology was performed by Dr. Alex J. Novak at the State of New Hampshire Division of Public Health Services on July 2, 1993. Negative results were reported for all screened volatiles and drugs.

ADDITIONAL INFORMATION

The airplane wreckage was released to Daniel S. Klein of Brookline, Massachusetts, Insurance Adjuster, on Friday, July 2, 1993.

Pilot Information

Certificate:	Private	**Age:**	47, Male
Airplane Rating(s):	Single-engine Land; Single-engine Sea	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Seatbelt, Shoulder harness
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim.	**Last FAA Medical Exam:**	06/30/1992
Occupational Pilot:		**Last Flight Review or Equivalent:**	
Flight Time:	289 hours (Total, all aircraft), 47 hours (Total, this make and model), 208 hours (Pilot In Command, all aircraft), 8 hours (Last 90 days, all aircraft), 5 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	CESSNA	**Registration:**	N2880K
Model/Series:	180K 180K	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	180K53116
Landing Gear Type:	Float	**Seats:**	2
Date/Type of Last Inspection:	04/24/1993, Annual	**Certified Max Gross Wt.:**	2850 lbs
Time Since Last Inspection:	8 Hours	**Engines:**	1 Reciprocating
Airframe Total Time:	1454 Hours	**Engine Manufacturer:**	CONTINENTAL
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	O-470-U(6)
Registered Owner:	EDWARD DOWNER	**Rated Power:**	230 hp
Operator:	EDWARD DOWNER	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	**Condition of Light:**	Day
Observation Facility, Elevation:	CON, 346 ft msl	**Distance from Accident Site:**	12 Nautical Miles
Observation Time:	0754 EDT	**Direction from Accident Site:**	170°
Lowest Cloud Condition:	Clear / 0 ft agl	**Visibility**	35 Miles
Lowest Ceiling:	None / 0 ft agl	**Visibility (RVR):**	0 ft
Wind Speed/Gusts:	4 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	340°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	18°C / 12°C
Precipitation and Obscuration:			
Departure Point:	, NH	**Type of Flight Plan Filed:**	None
Destination:	QUEBEC, CANADA	**Type of Clearance:**	None
Departure Time:	0800 EDT	**Type of Airspace:**	Class G

Wreckage and Impact Information

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

Administrative Information

Investigator In Charge (IIC):	MARGARET B NAPOLITAN	**Report Date:**	06/30/1994
Additional Participating Persons:	ED JOHNSON; PORTLAND, ME RICK BOLIN; CONCORDE, NH A.J. GUITZ; WICHITA, KS JOHN KENT; DALLAS, TX		
Publish Date:			
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.ntsb.gov/pubdms/.		

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