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AIRCRAFT ACCIDENT REPORT
RAPPORT D'ACCIDENT D'AVIATION

TP 1090

"This accident was investigated to provide guidance toward the prevention of a recurrence. The content of this report is confined to cause-related circumstances and is published for accident prevention purposes only".

P60063

de Havilland DHC6 (Floats)

CF-AWF

DATE: 22 September 1976 1110 PST

OPERATION: Charter DAMAGE: Substantial

PLACE: Mosher Creek, B.C. 52/27N 125/56W

LOCALE: Tree covered mountain, 4300 asl

WEATHER: Cloud 7000 scattered, vis 15+, temp 5°C, wind WSW 10 mph

PILOT: Commercial

TOTAL HOURS: 4300 ALL 2500 ON TYPE

LAST 90 DAYS: 280 ALL 280 ON TYPE

CASUALTIES: Crew: 1 serious, 1 uninj; pass: 1 fatal, 1 serious, 14 uninj.

OCCURRENCE: After circling a fish hatchery facility, the pilot commenced climbing to proceed to another site. The climb was made in a narrow valley and toward a 6000 foot mountain. As the aircraft approached a 4500 foot ridge, the pilot, realizing he would be unable to clear the ridge, called for 10° of flap and commenced a turn to the left back toward the valley. When the aircraft began to shudder as it approached a stall condition, the pilot levelled the wings and crash landed into the trees.

The aircraft had been chartered to carry a group of Canadian and American fishery engineers on a tour of fishery installations and projects in British Columbia. (Two similar aircraft were used, each carrying 16 passengers.) The proposed flight was to go from Campbell River, B.C. to various points and then back to Vancouver the same day.

After Campbell River, the next planned refuelling stop was Bella Coola. The distance between these points, via valley routes, varies from 198 to 229 nautical miles. This distance would depend on the altitude the pilot could maintain for terrain clearance while remaining VFR under prevailing weather conditions. The float-equipped Twin Otter DHC6, when carrying a load of 16 passengers and 200 lbs of baggage, can carry only about 700 lbs of fuel and remain within the authorized gross weight limitations. A true airspeed of 130 knots is normally used for planning purposes. Had the aircraft been fuelled to its maximum authorized gross weight, and using the shortest distance for flight planning, the fuel would have been insufficient to reach destination plus a VFR reserve. It is apparent therefore that the aircraft carried an overload of fuel on this leg of the flight. (Due to poor weather conditions encountered and the uncertainty of conditions at Bella Coola, the pilots of both aircraft elected to change the itinerary and refuel at Shearwater.)

After refuelling at Shearwater, B.C. the aircraft was flown at a low altitude and through marginal weather conditions to the Atnarko River counting station. There the pilot, on request of the tour director, circled the aircraft within the confines of a narrow valley at an altitude of approximately 500' above the terrain. After the third orbit of the area, he initiated a climb in a northeasterly direction along the northern slope, paralleling the contours of the valley. On reaching an altitude of

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approximately 3000' ASL, he turned further to the left to follow a creek while continuing his climb directly toward a ridge located at the 6000' elevation. At approximately 4300' the pilot realized the aircraft could not outclimb the gradient of the terrain. He attempted to turn to the left to reverse his course. As he banked the aircraft, it began to shudder as though it was entering a stall. He levelled the wings and at almost the same instant the undercarriage began striking trees. The aircraft struck the tree-covered slope with the undercarriage absorbing the majority of the impact forces. During the impact, the tail section aft of the cabin area and the right wing separated from the fuselage. The remainder of the fuselage came to rest in a comparatively level attitude allowing the crew and passengers to evacuate the wreckage. One passenger succumbed to his injuries approximately four hours after the impact, the others survived. There was no survival gear and no emergency signalling equipment on the aircraft. The co-pilot placed the ELT (emergency locator transmitter) on top of the wreckage and activated it manually; it failed to operate due to impact damage.

The pilot-in-command, who survived the accident, although seriously injured, believed he had encountered subsidence just prior to the accident and that this reduced the rate-of-climb of the aircraft.

The pilot's assessment could not be corroborated by other pilots flying in the area at the time, including the pilot of the second Twin Otter. They all indicated that they had encountered no signs of subsidence during their flights and further stated that it was an exceptionally smooth day with no turbulence whatsoever in and around the Bella Coola Valley. Radiosonde reports from Port Hardy and Annette Island, although a considerable distance away from the accident area, show no indications of winds of sufficient strength at the 7000 to 8000 foot elevations to create any subsidence and as the air mass covering the area was extensive, it is considered that there had been very little change in the upper winds in either strength or direction over the accident area.

Evidence indicates that the aircraft was between 1000 - 1600 pounds overloaded on departure from Shearwater. Allowing one hour fuel burn-off from Shearwater to the accident site, the aircraft would have exceeded the maximum authorized gross weight by between 400 - 1000 pounds at the time of impact.

It is concluded that the pilot, while climbing along the contours of a steep side hill to clear a high ridge, misjudged the height and the gradient of the terrain. He also did not cater for the reduced climb performance of the aircraft resulting from the overweight condition. On realizing his predicament, he attempted to turn away from his intended flight path. His airspeed however had decreased to a point where, as he attempted the bank to the left, the aircraft entered a stall.

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FINDINGS

The aircraft was overloaded on take-off from Shearwater.

The pilot misjudged the climb capability of the overloaded aircraft relative to the climb gradient required for terrain clearance.

The Company did not provide adequate emergency survival equipment on the aircraft (Air Navigation Order A.N.O. Series "V": No. 12 refers).