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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".

P50069

de Havilland DHC6

CF-MHU

DATE: 30 September 75 1325 PST

OPERATION: Irregular Specific Point

DAMAGE: Destroyed

PLACE: Skeena River, B.C. 56/59N 128/22W

LOCALE: Mountain Ridge 5200 asl

WEATHER: Cloud 100 overcast, rain, vis 0, temp 18°C, wind calm

PILOT: Sr. Commercial

TOTAL HOURS: 2350 ALL 600 ON TYPE

LAST 90 DAYS: 270 ALL 200 ON TYPE

CASUALTIES: Crew: 2 killed; pass: 5 killed

OCCURRENCE: While transporting passengers and cargo on a scheduled flight from Prince George, B.C. to Dease Lake via other points, the flight, operating VFR, encountered poor weather soon after take-off from Kluatantan airstrip. About 23 miles north of the take-off point, the aircraft crashed against the side of a ridge at the 5200 foot level.

The flight to Kluatantan was uneventful with the usual stops at Fort St. James and Bear Lake, arriving at Kluatantan at 13:30. The aircraft was refueled to full capacity and took off for Klappan airstrip and Dease Lake at approximately 14:15. The takeoff, down valley to the south, appeared to be quite normal, the aircraft then turned and began heading in a northwesterly direction up the Skeena River Valley. One of the pilots was overheard on the radio advising Klappan that they would be arriving in 20 minutes (which computes to a cruise airspeed of 145 mph). A witness located in the valley 8 miles south of the accident site indicated that although the weather in the valley was down in rain and low cloud, he observed the aircraft as it flew by and it appeared to be 400 to 500 feet above ground.

The aircraft struck the south slope of a ridge at 5,200 feet A.S.L. while in a slightly nose high wings level attitude at a comparatively high airspeed for the condition of flight. Following initial impact the trajectory carried it over the edge of the sloping terrain an additional 75 to 80 feet. The wreckage came to rest on the side of the ridge and was mostly destroyed by a post impact fire. All on board lost their lives.

The aircraft had flown 8496 hours since new. It appeared to have been adequately maintained and to have been in good condition prior to impact. No evidence was found to indicate any prior failure or malfunction of the engines, airframe, or controls. The performance capabilities of the aircraft were adequate and were not considered to be a factor in the accident. It was properly loaded and was being flown well within the prescribed weight and balance and centre of gravity limits.

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Weather information passed to the pilot from various strip observers along the flight route indicated that the conditions were above minimum VFR at all the intermediate stops enroute to Dease Lake. The forecast for the Cariboo Region, through which the majority of the flight took place, indicated fog forming in the valleys but there was no indication of any active frontal systems moving into the area or of any precipitation in the region. Consequently it can be concluded that the pilot having received this information was not concerned about the possibility of encountering enroute rain or low cloud.

Weather forecasting for this area is carried out by forecasters located in the Vancouver Atmospheric Environmental Services office, 600 miles south-east of the accident scene; although this is not unusual in itself, the scarcity of adequate weather reporting points in this part of the region makes it extremely difficult if not impossible to provide an accurate and meaningful forecast to pilots who fly this route. The nearest official aviation weather reporting station is at Dease Lake 130 miles north-west of the accident scene. Unofficial weather observations are taken on a daily basis at the majority of the B.C. railroad construction line strips using weather reporting kits supplied by the aircraft operator.

It would appear from the witness statements that although the weather conditions at the time the aircraft took off from Kluatantan were well above VFR and were reported to be similar at the next stopping point, conditions lowered drastically in the valley along which the flight progressed, probably to the point where the pilot could no longer maintain visual contact with the ground.

Wheel markings on the dirt covered sloping terrain as well as wreckage scatter indicated the aircraft struck the ground while in a 10° nose high attitude with sufficient force to carry the wreckage in a trajectory over the lip of the ridge onto a flat area 80 feet beyond the initial impact point. Examination of the engines and damaged propellers established that both engines were developing considerable power at impact. It was concluded from this evidence that the aircraft was in a climb at the time of the occurrence.

The aircraft was estimated to be 500 feet above ground, 8 miles south of the accident scene, the altitude difference would be almost 2000 feet between the point and the accident site. In order to arrive at the crash position the aircraft must have initiated a climb at least 3 miles south of the accident area. A climb airspeed of 83K provides the best climb angle which would place the aircraft in a comparatively nose high attitude, however, ground markings at the initial point of contact indicate that a shallow climb angle was being used. Furthermore, the degree of scatter and the length of the trajectory of the heavier objects suggest that the airspeed was much

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higher at impact than the recommended best climb angle speed. It is evident then, that the pilot was not using a maximum rate of climb. It is also apparent from the impact markings that the pilot did not take any evasive actions in an attempt to avoid impact (in all probability this was due to the lack of forward visibility as a result of being in cloud and rain).

Company pilots stated that in rain conditions at cruise speed, the aircraft's windshield wiper system would not effectively clear the glass to allow adequate forward visibility. This observation was verified to the satisfaction of the Aviation Safety Investigator. In order to obtain effective rain removal it was necessary to reduce airspeed to 80 knots. This observation pertaining to the DHC 6 aircraft type may have been a factor in this accident.

It is concluded that as the flight proceeded north along the Skeena River valley the pilot, while following the river along the floor of the valley continued into deteriorating weather conditions. At a point some four to five miles south of the accident scene he lost visual ground contact and began to climb into the cloud, maintaining the last heading he was using prior to losing visual reference. His reason for using a shallow climb rate could not be determined, however, as there was no evidence found to indicate any failure or malfunction of the aircraft's engines or controls, it can only be assumed that the pilot must have felt that he had an unobstructed area ahead provided he maintained his heading.

The company involved appears to be operated on a professional basis using well maintained aircraft and adequately trained crews in their operations. The company was authorized to conduct the first portion of the route to Fort St. James under IFR regulations, however, the remainder of the route was to be flown according to VFR mountainous terrain regulations.

The terrain over which the flight was made after departing Fort St. James, was primarily along the mountain valley in which the B.C. railroad was constructing its rail line to Dease Lake, B.C.

In this instance, there was no evidence to suggest company pressure on the pilot to continue with this or any other VFR flight under adverse weather conditions. It is reasonable to conclude then, that the pilot's actions which ultimately led to this accident constituted an error in judgement. It is considered however, that the lack of meaningful weather forecasting for the area and the non-availability of accurate weather reports along the route was an important factor in this accident.

FINDINGS

The pilot continued the flight along a narrow valley into deteriorating weather conditions below the altitude required for safe terrain clearance.

The pilot's forward visibility was hampered by an ineffective windshield wiper system.

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The pilot, after losing visual reference, attempted to obtain safe terrain clearance by climbing into the cloud layer.

The pilot for undetermined reasons, did not initiate or maintain a maximum rate of climb to clear enroute terrain.

Accurate and up-dated presentation of forecast or actual weather conditions in the accident area was not available to the pilot prior to his departure from Prince George due in part to the lack of reporting points.