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ANALYSIS

INVESTIGATOR'S APPRAISAL (1)

INDICATE WHICH ITEMS OF THE RECORDED FACTUAL DATA, IN THE VIEW OF THE INVESTIGATOR, CAUSED THE ACCIDENT. DESCRIBE IN NARRATIVE HOW THE ITEMS INTERACTED TO CAUSE THE ACCIDENT.

The pilot had a total of 3750 hours experience, 450 hours on the Grumman Goose. He was familiar with the route and the terrain in the accident area. He was considered competent by his fellow pilots and his company check pilots. On 6th May 1974 he passed an Instrument Flight Test with no problems when given an engine failure and communication failure.

The aircraft had been modified to retractable floats and improved wingtips and from examination of the Journey Log, was capable of cruising speeds of 160 MPH. This is some 10 or 15 MPH faster than average G21A aircraft. There were no indications of any problems in the aircraft's recent history.

The flight was a VFR scheduled flight from Tofino to Vancouver, approximately 120 miles if flown direct. When flown direct the flight would pass over Franklin River, a company reporting point 42.5 miles East of Tofino. The accident scene is 13.5 miles East of Franklin River and in a valley leading to one of the passes used by flights in clear weather. The height of this pass is 2800 feet above sea level. Witness Pera, the only person in the accident area, and who knew the area well, considered that the existing cloud base would be lower than 2800 feet in the pass, though he could not see the pass from his location but related the height of the cloud base to known terrain features in the valley. He first observed the aircraft flying up the valley (towards him), just below the cloud base, and immediately commence a steep turn (45° indicated). The witness then lost sight of the aircraft due to intervening terrain, and his attention was drawn, a few seconds later, by a large smoke pall rising from the crashed aircraft.

The best evidence of the height of the aircraft at the inception of the turn is 2200 - 2400 feet ASL, related to a rock face, part of which was in cloud and part of which was visible under the cloud base.

(cont'd on 11A)

RECOMMENDATIONS (2)

It is recommended that consideration be given to requiring operators of VFR scheduled flights in mountainous regions to specify approved routes and minimum altitudes in passes.

FOR REGIONAL USE

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(1) As briefly as possible the Investigator should express his opinion of the cause(s) of the occurrence and the reasons for his opinion.

(2) The recommendations required here are those which the Investigator believes will prevent recurrence of similar mishaps.

When first seen, the aircraft was in a climbing attitude and close to the North side of the valley.

The flight had earlier been observed flying in a Southeasterly direction at about 1500 feet in the Ucluelet area and staying clear of the low cloud inland which existed there.

The elapsed time from Tofino departure to reporting by Franklin River was 19 minutes and the distance is 48.5 miles. It is apparent that this part of the flight was made without deviation and at a high cruising speed, (153 MPH).

The direct route from Franklin River to the accident site is 13.5 miles; since the evidence indicates this section to have been covered in approximately 6 minutes (135 MPH) it is considered that the route taken was substantially direct and not involving any great altitude change. The 8m/inch aeronautical map shows such a route via the Franklin River and Nitinat River valleys which could be flown at 2000 feet ASL.

The maintenance of maximum cruise speed to the vicinity of the accident area would indicate that the pilot did not anticipate any need to turn in the accident valley and that he assumed the pass would be open.

The radio contact made when "by Franklin River" confirms this, since though the pilot would be aware of the general weather picture from his flight up the Alberni Canal he reported that his route would be "via Nanaimo Lakes" - which is the company term for direct flight between Franklin River and Nanaimo or Vancouver.

It is possible that the turn in the accident valley may have been because the pilot considered that he did not have the performance to climb to the pass in the distance available, but this is considered unlikely since the aircraft was not in a maximum angle of climb when first seen by the witness. The pilot also had sufficient knowledge and experience of the area to be well aware of a minimum height at which it would be safe to enter this valley.

The aircraft struck the terrain while banked 50° right wing down and nose down 30-35°, striking stumps on a 45° slope, after turning through 250°.

The angle of bank, its close relationship to the terrain angle and the impact damage to the aircraft would indicate that the aircraft was not stalled at impact but was under control up to the impact.

Dynamics relating to the manoeuvre are:- Aircraft load factor 3.5
Stall speed (sea level, gross) 60.79 knots
Manoeuvring speed 113.7 knots
Turn established at 45° bank,
Impact at 50-55° bank

At 113.3 knots and 50° bank the minimum turn radius would be 956.6' for a steady co-ordintated turn.