

CIVIL AERONAUTICS BOARD

AIRCRAFT ACCIDENT REPORT

ADOPTED: August 17, 1960

RELEASED: August 22, 1960

BEECHCRAFT, MODEL C-18-S, N 57139, NEAR
McGRATH, ALASKA, SEPTEMBER 1, 1959

SYNOPSIS

A chartered Beechcraft, model C-18-S, crashed near McGrath, Alaska, on September 1, 1959, about 2214 A.s.t., killing all eight occupants.

The aircraft departed Kotzebue for McGrath, both in Alaska, at 1315 A.s.t., with nonrefueling stops at Kiana and Tanana. At Tanana Pilot Chefley W. Priest was briefed on en route weather to McGrath as well as on the route and terminal forecasts. He departed Tanana at 1957 A.s.t., about an hour before sunset, on a VFR flight plan.

An emergency distress call from the aircraft was first heard at 2128 A.s.t. There followed several communications between the Beechcraft and the McGrath ground station which issued navigational advice. At or about 2214 A.s.t., approximately three-quarters of an hour after dark and during rain showers, the aircraft struck the ground violently in a steep spiral at a point about 26 miles from the McGrath Airport. This accident appears to have been caused by the pilot's loss of control during instrument flight and his failure to recover.

Investigation

The purpose of the flight was to transport a group of six young women and their manager, engaged in selling magazine subscriptions, from Kotzebue to Anchorage. At Kotzebue the aircraft was fueled to its capacity of 206 gallons of gasoline and 7-1/2 gallons of oil. Upon departure from Kotzebue at 1315 1/2 the gross weight of the aircraft was computed to be approximately 8,600 pounds. The maximum certificated gross weight for this aircraft is 7,850. The aircraft landed at Kiana at 1350, departed there at 1525, and then landed at Tanana at 1726 for a stop of approximately 2-1/2 hours, but no fuel was added at either place although available at both places. While at Tanana Pilot C. W. Priest was furnished the existing and forecast en route weather by an FAA airways operations specialist.

Departure from Tanana was at 1957, about an hour before dark, on a VFR flight plan in which the pilot estimated a flying time of one hour and 30 minutes to McGrath and fuel for two hours and 30 minutes. McGrath is about 166 miles to the southwest of Tanana. (See Attachment A).

1/ All times herein are Alaska standard based on the 24-hour clock.

Nothing was heard from the Beechcraft after leaving Tanana until approximately 2128 when an Air Force reconnaissance flight identified as "Loon Hotel" intercepted a MAYDAY call from it on the emergency frequency of 121.5 mcs.

Loon Hotel immediately notified McGrath radio of the MAYDAY call which McGrath had not heard. Attempts were then made by McGrath to contact the Beech on all frequencies available but with no success. At 2135 McGrath heard the Tatalina Aircraft Control and Warning Site (about 12 miles west-southwest of McGrath) call the Beech on 121.5 mcs. McGrath asked Tatalina if contact had been established with the aircraft transmitting the MAYDAY call. Tatalina advised being unable to establish two-way communications and that it did not have the aircraft on radar.

At approximately 2145 the aircraft appeared on the Tatalina scope and Tatalina began broadcasting the bearing and distance of the aircraft to McGrath in the blind. At this time on their radar the Beech was 54 miles north-northwest of McGrath on a southwest heading. At 2150 McGrath began broadcasting in the blind on 350 kcs. range frequency and 122.2 mcs., the steers being given by Tatalina on 121.5 mcs.

At 2157 McGrath established two-way contact with the Beech on 121.1 122.2 mcs., and continued to give bearing and distance position reports as intercepted from Tatalina, starting at the time the aircraft was 110 degrees and 49 miles from McGrath. at 2158 McGrath broadcast the following steers to the aircraft: 108 degrees and 47 miles, 106 degrees and 41 miles, 102 degrees and 36 miles, which the flight acknowledged.

At 2204 McGrath advised the Beech to maintain a heading of 102 degrees and that it was 36 miles from McGrath. McGrath then also asked the nature of the emergency and the pilot replied that he was low on fuel and in rain showers.

At 2207 McGrath advised the pilot to maintain a heading of 100 degrees and informed him that he was 32 miles from McGrath. The pilot stated that he then had the field in sight and requested terrain information between his aircraft and McGrath. McGrath reported that from the information received from Tatalina they believed his aircraft to be in the vicinity of Cloudy Mountain, which is 4,200 feet above sea level. McGrath radio also informed the flight that to the south Takotna Mountain and the Kuskokwam Mountains rose to approximately 3,100 feet and 2,300 feet altitudes, respectively, and that to the north of Cloudy Mountain the terrain was slightly higher. The 2155 weather report was then given to the aircraft and McGrath requested the pilot to confirm that he had the field in sight. He replied, "Roger, have your field in sight."

At 2211 the pilot requested the height of Cloudy Mountain and McGrath replied, "Approximately 4,200 feet" and inquired if the pilot had a chart. He replied, "Yes, -- what is the altimeter?" McGrath gave the altimeter as 29.84, after which the pilot replied, "Boy, I need some altitude." At Tanana, the last stop, the altimeter setting was 29.70.

At 2214 McGrath, using information obtained from Tatalina, advised Priest that his heading to McGrath was 100 degrees and that he was now 26 miles from the airport. McGrath then asked for his present altitude to which the pilot

replied, "At 5,000 feet, in the soup, boy I am really in it. Radar will have to get me down."

This was the last radio contact between McGrath radio and the Beech, and at this time Tatalina lost radar contact with the aircraft. McGrath attempted repeatedly to reestablish contact without success.

The Beechcraft wreckage was located on September 2, 1959, at 0742 by Air Force Search and Rescue aircraft 26 miles north-northwest of McGrath at the approximate location the aircraft had disappeared from the Tatalina radarscopes. The aircraft wreckage was confined to a small area. At the time of impact the nose was down sharply; the right wing was down appreciably; the direction of impact was 227 degrees magnetic. Propeller pitch setting, power settings, and other information needed to reconstruct the final few seconds of flight were not determinable. Owing to severity of impact it was not possible to learn if there had been a malfunction of any component prior to impact, although all major components were accounted for at the crash site which was at an elevation of 1,800 feet above sea level.

As the aircraft had not been refueled at either Kiana or Tanana, the entire flight from Kotzebue to the accident site had been made on 206 gallons of fuel. The total flight time from Kotzebue to Tanana to the accident site was five hours and 36 minutes.

Investigation disclosed the following relative to weather conditions: Between Tanana and McGrath, during the period from 1900 to 2300, there were broken to overcast cloud layers based at 3,000 to 4,000 feet above mean sea level along the entire route. There were also patches of broken stratus occasionally forming near 1,500 feet. Visibility was at least ten miles except when briefly restricted to two miles in very light rain or drizzle. The tops of the cloud layers were at 14,000 feet above mean sea level over Tanana, sloping to 6,500 over McGrath. The freezing level was at 5,000 feet above mean sea level over Tanana, sloping to 3,500 feet over McGrath.

Surface winds along the route were westerly of less than five knots, becoming northwesterly ten knots at 2,000 feet and northerly ten to 15 knots between 5,000 and 10,000 feet above mean sea level. Over the northern two-thirds of the route occasional light icing would have been experienced in the clouds above the freezing level to 11,000 feet. Turbulence was unlikely except for possible light turbulence near Tanana. Over the remainder of the route and in the McGrath area light icing was present in the clouds and in precipitation above the freezing level.

A very light rain began to fall at McGrath at 2100 and approximately 15 minutes before the accident the observation at McGrath gave a measured ceiling of 4,000 feet, overcast; visibility 20 miles plus, very light rain. Cloud heights at the U. S. Weather Bureau station at McGrath are measured by means of a fixed-beam ceilometer.

Pilot Priest had more than 100 hours experience flying this model aircraft and had approximately 6,500 hours of total pilot time, much of it over Alaskan wilderness. He held a commercial pilot certificate with multiengine land and

sea ratings. His last physical examination was passed in June 1959, at which time he had a total of 6,500 hours. He did not have an instrument rating.

The last 100-hour and periodic inspection on the aircraft was on March 25, 1959, at which time the aircraft was certificated as airworthy. No further maintenance entries were made in the logbook. However, the logbook reflected flight time on the aircraft through June 30, 1959, and on that date 19 hours had been flown since the previously mentioned 100-hour inspection. Investigation disclosed that the aircraft had made several flights since that date for which no entries had been made. Although certified as airworthy, there was testimony by the service attendant at Kotzebue of signs of considerable oil leakage. Seven and one-half gallons of oil were added at Kotzebue to bring the oil supply to the proper quantity of 16 gallons. The aircraft was equipped with VOR, VHF, ILS, LF/MF, and marker beacon receivers and a VHF transmitter.

Analysis

It is impossible to relate this accident directly to the mechanical condition, including high oil consumption, of the aircraft. The aircraft was markedly overweight upon departure from Kotzebue. However, the aircraft was under its maximum gross weight of 7,850 pounds by about 450 pounds at the time it crashed inasmuch as it was either completely, or very nearly, out of fuel.

The series of events culminating in the crash of this aircraft cannot be definitely established. Approximately the last three-fourths of an hour of flight was in darkness, over a wild and uninhabited region completely without lights, and under an overcast. There was no ADF in the aircraft as it had been removed for repairs and Priest was therefore limited to using the low-frequency radio ranges. Under these conditions navigation would have had to be by dead reckoning or by reference to low-frequency ranges. Pilot Priest had nearly 2-1/2 hours of fuel upon leaving Tanana for a flight that he estimated would take about 1-1/2 hours. However, he became lost and consumed considerable time and fuel before reaching the general vicinity of McGrath. Based on conservative fuel consumption figures the fuel would have been, or almost exhausted at the time of the accident. After receiving terrain altitude information from McGrath the pilot climbed into the overcast to ensure ground clearance. Shortly thereafter he gave the message, "At 5,000 feet, in the soup, boy am I really in it. Radar will have to get me down." This message indicates that he had climbed into adverse weather.

Pilot Priest was then in a very dangerous position. Although the record indicates he had some practical experience with instrument flight, he obviously was not able to cope with existing circumstances. Accordingly, the Beechcraft was shortly in a tight, fast, steep spiral from which, because of his limited instrument experience, Priest was unable to recover.

The localized wreckage and its extreme disintegration confirm impact following a fast steep spiral. The very brief fire which followed the crash also suggests that there was little or no fuel left in the Beechcraft's tanks. Inasmuch as all major components of the aircraft were accounted for at the crash site, it is logical to conclude that there was no inflight failure of the aircraft.

Possibly Priest did see the lights of McGrath, as he said, but lost them as he descended and a hilltop blocked vision. It is extremely unlikely that he could have seen other lights which he mistook for McGrath, as there were no clusters of lights between him and McGrath. It is also unlikely that he could have seen the lights of Tatalina Aircraft Control and Warning Site as it was hidden by a hill. The weather he encountered was substantially as forecast and the flight, therefore, should not have been hampered by unexpected weather conditions upon nearing McGrath.

Conclusion

The Board concludes that this accident was entirely operational in nature and that it had its inception in two basic circumstances. One, a pilot of questionable instrument ability became lost and climbed into an area where instrument proficiency was necessary; two, based on the amount of fuel carried and the elapsed time involved, it is likely that fuel exhaustion occurred at approximately the time when control of the aircraft was lost.

Probable Cause

The Board determines that the probable cause of this accident was the pilot's loss of control while flying under instrument flight conditions, and failure to recover control. Contributing factors were poor flight planning, possible fuel exhaustion, and the pilot's lack of instrument proficiency.

BY THE CIVIL AERONAUTICS BOARD:

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S U P P L E M E N T A L D A T A

Investigation and Hearing

The Civil Aeronautics Board was notified of this accident by the Federal Aviation Agency shortly after occurrence. An investigation was immediately initiated in accordance with Title VII of the Federal Aviation Act of 1958. A public hearing was ordered by the Board and was held at Anchorage, Alaska, September 17, 1959.

Pilot

Chefley W. Priest, age 35, of 1805 30th Street, Spenard, Alaska, held a valid commercial pilot's certificate with multiengine land and sea ratings. His medical certificate was Class I, without limitations, and had been renewed in June 1959. Mr. Priest's total piloting time, as stated on his application for his last physical examination in June 1959, was 6,500 hours. Evidence indicates that some of Mr. Priest's piloting had been of a nature requiring instrument flight; however, he did not have an instrument rating.

Aircraft

The aircraft was a Beech, model C-18-S, N 57139. Its registered owner was Donald L. Bailey of the Adwater Hotel, Anchorage, Alaska. The total time on the aircraft was 3,429 hours and the time since overhaul was 642 hours. Engines were Pratt and Whitney, model R 985-14B. Both had had 642 hours since overhaul and 29 hours since periodic inspection. Propellers were Hamilton standard with 642 hours since overhaul.



Operator

Although this flight was being conducted as a charter operation, no Alaskan air taxi operator's certificate, as required by Part 293 of the Board's Economic Regulations, had been issued to or applied for by the operator, Bailey Enterprises, Inc., an Alaskan corporation.

Attachment A

AIRCRAFT ACCIDENT BEECHCRAFT N 57139

September 1, 1959

Probable Flight Path 
Proposed Flight Path 

Arrived TAL 1729 AST
Dept TAL 1957

TANANA

GALENA

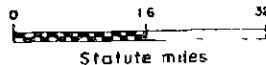
LAKE
MINCHUMINA

Position
at 2145

Positions
between
2150 2214

CRASH
SITE

SCALE



Bureau of Safety
CAB

