NATIONAL TRANSPORTATION SAFETY BOARD

AIRCRAFT ACCIDENT REPORT

Pan Alaska Airways, Ltd.
Cessna 310C, N1812H
Missing Between
Anchorage and Juneau, Alaska
October 16, 1972

NATIONAL TRANSPORTATION SAFETY BOARD
Washington, D. C. 20591
REPORT NUMBER: NTSB-AAR-73-1

File No. 3-0604

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16. Abstract

N1812H, a Cessna 310C operated by the chief pilot of Pan Alaska Airways, Ltd., disappeared on a flight from Anchorage to Juneau, Alaska, on October 16, 1972. In addition to the pilot, three passengers, including two U. S. Congressman, were aboard the aircraft.

After takeoff from Anchorage, the pilot of N1812H filed a Visual Flight Rules flight plan for the flight to Juneau. The weather conditions along the proposed route were not conducive to flight under Visual Flight Rules criteria.

An extensive air, sea, and land search was conducted during the 39 day period following October 16, 1972. Nothing was found that could be identified with either the aircraft or its occupants.

The National Transportation Safety Board is unable to determine the probable cause of this accident from the evidence presently available. If the aircraft is found, the Board will continue the investigation and make a determination as to the probable cause.

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File No. 3-0604

PAN ALASKA AIRWAYS, LTD.
CESSNA 310C, N1812H
MISSING BETWEEN ANCHORAGE AND JUNEAU, ALASKA
OCTOBER 16, 1972

Adopted: January 31, 1973

SYNOPSIS

A Cessna model 310C, N1812H, operated by the chief pilot of Pan Alaska Airways, Ltd., departed from Anchorage International Airport, Alaska, at 0859 on October 16, 1972. Three passengers, including two United States Congressmen, were aboard.

At 0909, the pilot of N1812H filed a Visual Flight Rules flight plan with the Anchorage Flight Service Station. He stated that he had departed Anchorage at 0900 and that his intended route of flight was via the V-317 airway to Yakutat, thence direct to his destination, Juneau International Airport, Juneau, Alaska. He estimated his flying time en route at 3 hours and 30 minutes.

At 1315, the U. S. Air Force Rescue Coordination Center at Elmendorf Air Force Base, Alaska, received notification that N1812H was overdue at Juneau, An intensive search of areas along the proposed route and all probable alternate routes was conducted during the following 5-1/2 weeks. Nothing was found that could be identified with either the aircraft or its occupants,

The weather conditions along the proposed route from Anchorage to Juneau were not conducive to flight under Visual Flight Rules,

The National Transportation Safety Board is unable to determine the probable cause of this accident from the evidence presently available. If the aircraft is found, the Safety Board will continue the investigation and make a determination as to the probable cause of the accident.

The Safety Board recommends that the Federal Aviation Administration, through its accident prevention staff, make wide dissemination of the details of this accident to the general aviation community, particularly to those pilots and operators involved in operations in remote and environmentally hostile areas.

INVESTIGATION

The chief pilot of Pan Alaska Airways, Ltd., departed from Fairbanks, Alaska, on October 15, 1972, in a Cessna 310C, U. S. Registry No. N1812H, for the purpose of transporting passengers from Anchorage to Juneau the following day. He departed from Fairbanks at 1758 1/ and arrived at the Anchorage International Airport about 1940. He remained overnight in Anchorage.

At 0656, on October 16, 1972, the pilot of N1812H telephoned the Anchorage Flight Service Station (FSS) and asked for the current Juneau, Sitka, Yakutat, and Cordova weather, He told the FSS briefer that he would be flying a Cessna 310 under Visual Flight Rules (VFR) conditions to Juneau.

The FSS briefer gave the pilot the weather as reported on the 0600 sequence reports, the current terminal forecasts, the current area forecast, and the forecast winds aloft through 12,000 feet mean sea level (m.s.l.). The briefer informed the pilot that Portage Pass was forecast to be closed.

Shortly after 0800, the pilot taxied N1812H to the refueling pits at Sea Airmotive, Inc., a fixed-base operation located on the Anchorage International Airport. In accordance with the pilot's instruction, a Sea Air-motive employee filled the wingtip tanks on N1812H with 100/130-grade aviation gasoline; a total of 48.7 gallons was required. Sea Airmotive employees who saw and heard the aircraft stated that it appeared and sounded normal. Nothing was placed aboard the aircraft except the gasoline.

The pilot returned N1812H to the parking ramp near the base of the Anchorage control tower about 0840. Three passengers boarded the aircraft shortly thereafter. A witness identified these passengers as the Honorable Hale PI. Boggs and the Honorable Nicholas J. Begich, United States Congressmen from the States of Louisiana and Alaska, respectively, and Mr. Russel L. Brown, an administrative aide to Congressman Begich. The witness stated that a small amount of passenger baggage was placed aboard the aircraft.

1/ Unless otherwise indicated, all times are Alaska daylight times, based on the 24-hour clock.

At 0855, the pilot requested and received from the Anchorage ground controller, taxi information for a VFR departure from Anchorage. He made the takeoff from Runway 24R at 0859. The Anchorage control tower local and ground controllers both stated that the aircraft appeared normal while taxiing and during the takeoff and departure. The aircraft was approximately 2 miles south of the airport at an estimated altitude of 2,000 feet m.s.l., and on a southeasterly heading, when last seen by the local controller. This was the last known observation of N1812H.

About 0909, the pilot of N1812H established radio communications with the Anchorage FSS and filed a VFR flight plan. The FSS specialist recognized the voice of the pilot as being that of the same person to whom he had given the telephonic weather briefing at 0656. The pilot stated that he had departed from Anchorage at 0900 and his intended route of flight was via the V-317 airway to Yakutat, thence direct to Juneau International Airport, his destination. He estimated his time en route at 3 hours and 30 minutes at a true airspeed of 170 knots. He informed the FSS specialist that four persons and fuel for 6 hours were aboard. In response to the specialists's query as to whether he had "emergency gear and a locator beacon aboard," the pilot replied, "Affirmative."

The FSS specialist then advised the pilot of the Cordova, Yakutat, Sitka, and Juneau weather as reported on the 0900 sequence reports. He also gave the pilot the pertinent portions of the current terminal and area forecasts . This was the last known communication with the occupants of N1812H.

At 1315 hours, the U. S. Coast Guard Rescue Coordination Center (RCC) at Juneau informed the U. S. Air Force RCC at Elmendorf Air Force Base, Alaska, that N1812H was overdue at Juneau. The U. S. Air Force RCC conducted an extended communications check of all airfields and facilities that might have knowledge of the whereabouts of N1812H. At 1345, when this check proved fruitless, the U. S. Air Force RCC diverted an airborne HC-130 2/ aircraft to commence the search for N1812H. This effort began one of the most extensive searches for a missing aircraft that has been conducted in recent aviation history.

The established search areas encompassed thousands of square miles. When the search for N1812H was officially terminated on November 24, 1972, much of the area had been covered numerous times by various types of U. S. Air Force, U. S. Army, U. S. Coast Guard, Civil Air Patrol, and civil aircraft and helicopters. A total of 1,033 sorties, involving 3,602 hours of flight time, had been flown, covering an area of approximately 325,755 square miles. Attachments 1 and 1A include most of the areas covered.

2/ The U. S. Air Force designation for a four engine, turbopropeller, transport manufactured by the Lockheed Aircraft Corporation. It is specially equipped for airborne search and rescue missions.

In addition, U. S. Coast Guard cutters, and merchant marine and fishing vessels, conducted extensive searches of the Prince William Sound, Gulf of Alaska, and Icy Straits areas. Much of the Portage Pass area was also searched twice by ground personnel.

Despite the thoroughness of the search, nothing was found that could be identified with N1812H or its occupants,

The mountainous terrain along the V-317 airway between Anchorage and Yakutat is such that, weather permitting, pilots of small aircraft proceeding VFR along the route, as a general rule, fly in a southeasterly direction from Anchorage over the Turnagain Arm of the Cook Inlet, through Portage Pass over the Prince William Sound to Johnstone Point, and on to Yakutat. The lower elevations of Portage Pass proper are approximately 400 feet m.s.l. However, mountains rise steeply on either side of the pass to elevations between 3,000 and 6,000 feet m.s.l. The minimum obstruction clearance altitudes 3/ along V-317 over the Portage Pass area are 7,100 and 8,000 feet m.s.l.

The October 16, 1972, surface weather chart prepared by the National Weather Service Forecast Office in Anchorage showed, among other phenomena, a warm front extending eastward from a point near Iliamna to a point about SO miles south-southeast of Yakataga. A high-pressure system was centered off the coast of southeastern Alaska.

The surface weather conditions as reported on the 0600 sequence reports were, in part, as follows for the stations indicated: (1) Cordova - ceiling measured 2,500 feet broken, 5,000 feet overcast, visibility 7 miles; (2) Yakutat - 300 feet scattered, ceiling measured 700 feet overcast, visibility 1-1/2 miles in fog; (3) Juneau - ceiling indefinite 500 feet obscured, one-half mile in fog; and (4) Sitka - clear, visibility 12 miles.

The later surface weather observations for the stations. and times indicated were, in part, as follows: (1) Anchorage - 0900 - 4,000 feet scattered, ceiling estimated 6,000 feet broken, 8,000 feet overcast with 30 miles visibility, temperature 40° F., dew point 37° F., wind 300° at 8 knots; (2) Seward - 1000 - ceiling estimated 4,000 feet overcast, visibility 7 miles in very light drizzle, temperature 52° F., dew point 45° F., wind 200° at 28 knots with gusts to 33 knots, visibility 3 miles in northeast one-half; (3) Cordova - 1000 - ceiling measured 3,500 feet broken, 5,000 feet overcast with 7 miles visibility in light rain,

3/ An altitude which provides clearance of mountainous terrain by 2,000 feet.

temperature 47° F., dew point 46° F., wind 090° at 11 knots; (4) Yakutat 1100 - 400 feet scattered, 2,000 feet scattered, ceiling estimated 4,800 feet broken, 20,000 feet overcast, visibility 20 miles, temperature 44° F., dew point 42° F., wind 060° at 6 knots; (5) Juneau - 1200 - ceiling estimated 600 feet overcast, visibility 4 *miles* in fog, temperature 41° F., dew point 38° F., wind calm; and (6) Juneau - 1300 - 700 feet scattered, ceiling estimated 20,000 feet overcast, visibility 12 miles, temperature 43° F., dew point 39° F., wind calm,

The pertinent portions of the aviation area, aviation terminal, and wind/temperature aloft forecasts, valid for use during the period of the proposed flight, appear herein as Attachment 2.

The aviation terminal and aviation area forecasts, issued at 0755 and valid for use from 0800 to 2000 on October 16, 1972, predicted no significant changes from the earlier forecasts. Portage Pass was again forecast to be closed, and moderate rime icing was forecast to exist in clouds from 6,000 to 15,000 feet over the Cook Inlet area,

About 0840, a U. S. Air Force helicopter, en route from Elmendorf to Seward, was over Turnagain Arm, abeam Girdwood, and about 7 miles from the Village of Portage. The pilot intended to fly to Portage and then follow the railroad tracks south to Seward. The pilot stated that he encountered moderate to severe turbulence at 500 feet m.s.l., headwinds of 55 knots, and broken to overcast cloud conditions 200 to 300 feet above him. He could see Portage, but the forward visibility was deteriorating. Due to the turbulence, he abandoned his attempt to reach Portage, and took an alternate route via Sunrise and the highway south towards Seward.

Pan Alaska Airways, Ltd. , is a certificated Air Taxi/Commercial Operator, authorized by the Federal Aviation Administration (FAA) to conduct air carrier operations under Part 135 of the Federal Aviation Regulations .4/ Pan Alaska was restricted to the use of aircraft of 12,500 pounds or less maximum certificated takeoff weight. In addition, Pan Alaska was certificated to conduct flight instruction operations at its facilities located at the Fairbanks International Airport.

When operating multiengine aircraft under Part 135 rules, Pan Alaska was restricted to VFR flight unless there were two pilots aboard, or the aircraft was equipped with an autopilot, and the pilot had demonstrated competency to fly the aircraft, by use of the autopilot, under instrument conditions.

4/ 14 CFR 135, Air Taxi Operators and Commercial Operators of Small Aircraft.

Although the investigation found no evidence to establish conclusively whether the pilot of N1812H was to be compensated for the flight from Anchorage to Juneau, it should be noted that one witness did testify that the pilot had stated that "he was not getting paid for the flight." The question of compensation is relevant. If the Pan Alaska aircraft was not being operated for hire, then the provisions of Part 91 of the Federal Aviation Regulations 5/ would apply to this flight; if the flight had been operated for hire, then the provisions of Part 135 would have applied.

The pilot of N1812H was the president and chief pilot of Pan Alaska Airways. He had acquired extensive flying experience in Alaska. (See Attachment 3 for additional information .)

N1812H was operated by Pan Alaska Airways on lease from the owner, Delaware Lease Air, Inc., of Wilmington, Delaware. A certificate of airworthiness was issued for the aircraft on Flay 12, 1959. The last annual inspection was completed on November 10, 1971, and the last 100-hour inspection was completed on October 15, 1972. The employees of Pan Alaska who accomplished the 100-hour inspection stated that no outstanding discrepancies existed on the aircraft.

The aircraft was equipped with the following communication equipment: one VOR navigational receiver, one ADF receiver and one VHF transceiver. It was equipped with an oxygen system, although this system had not been serviced wi th oxygen. The aircraft was not equipped with an automatic pilot; nor was there any anti-icing equipment installed, except for a heated Pi tot tube. The aircraft was not equipped with an emergency locator transmitter (ELT)6/, nor was one required by the Federal Aviation Regulations. However, Al askan law, effective September 6, 1972, prohibited flight within the State unless the aircraft was equipped with an approved emergency locator transmitter.

5/ 14 CFR 91, General Operating and Flight Rules.

6/ A device that, when activated, transmits radio signals on the aviation common emergency frequencies of 121.5 MHz or 243.0 MHz. These signals can be traced to their source, thereby enhancing search and rescue efforts.

Pan Alaska pilots complied with the Alaskan law by carrying a portable ELT with them, or in their flight kit. The chief pilot's personal ELT was found, after N1812H was reported missing, in the cabin of another Pan Alaska' aircraft at Fairbanks.

A witness who saw the pilot of N1812H on the morning of October 16, 1972, stated that the pilot had an unidentified object in his briefcase, which he carried aboard the aircraft. The object described was approximately the size and shape (but of different color) of the ELT's that Pan Alaska stocked for sale at its Fairbanks facility.

According to Alaskan law, certain minimal items of survival equipment7/ are required to be aboard all aircraft on cross-country flights within the-State. Pan Alaska possessed three containers, packed with the required items, one of which was to be placed aboard an aircraft for a cross-country flight. Subsequent to October 16, 1972, all three of these containers were found at Pan Alaska's Fairbanks facility. Company employees and another witness, who were in the cabin of N1812H prior to its departure from Fairbanks and Anchorage, stated that nothing was in the cabin that resembled a package or container or survival equipment.

ANALYSIS

The examination of aircraft records, the testimony of company employees who completed the 100-hour inspection on October 15, 1972, and the testimony of witnesses who observed the aircraft on the following day, all tend to establish that N1812H was airworthy for this flight. However, until the aircraft, or significant portions thereof, is recovered, the Safety Board cannot exclude the possibility of an in-flight malfunction, or catastrophic component failure, that might have resulted in an accident.

Although the aircraft was apparently slightly overweight on departure from Anchorage, the Safety Board believes that the extra weight probably had no adverse effect on the capability of the aircraft to complete the flight as planned. This is particularly true in view of the lower-than-standard day density altitude factor (approximately - 2,000 feet) involved.

7/ The items required are: (1) sufficient food for each occupant to sustain life for two weeks; (2) one ax or hatchet; (3) one first-aid kit; (4) one pistol, revolver, shotgun, or rifle, and ammunition therefor; (5) one small fish net and an assortment of fishing tackle; (6) one knife; (7) two small boxes of matches; (8) one mosquito headnet for each occupant; and (9) two small signaling devices such as colored smoke bombs, railroad fuses, or a Very pistol. Additional items required during the period from October 15 to April 1 are: (1) one pair of snowshoes, (2) one sleeping bag, and (3) one wool blanket for each occupant in excess of four.

The pilot was qualified and current in accordance with the applicable regulations.

Although the investigation did not disclose any evidence directly bearing on the pilot's performance or technique during the flight under adverse weather conditions, it may be noted that previously he had authored several articles 8/ on the subject of flying under comparable adverse weather conditions. The articles, among other things, advised pilots to be prepared for the situations that were likely to be encountered. For instance, he advocated that one always maintain: (1) a mental picture of the weather ahead, (2) a reserve of altitude, (3) extra fuel, and (4) an alternate course of action. He advised against flying into obviously bad situations, such as dark areas of precipitation when the outside temperature was in the critical icing range. To avoid icing, he recommended remaining in VFR conditions as much as possible and climbing through holes and flying between or on top of cloud layers, rather than in the clouds. Further, he recommended that a doublecheck be made of the survival equipment aboard the aircraft and that the proper winter clothing be worn by all occupants of the aircraft.

On the day of the flight, the forecasts and existing weather conditions along the significant portion of the proposed route were not conducive to flight in visual conditions. There is ample evidence that the pilot was aware of the poor en route weather conditions, and the available evidence suggests that the disappearance of N1812H may have been related to those conditions.

CONCLUSIONS

1. The pilot of N1812H was certificated and qualified in accordance with the applicable regulations,

2. The aircraft was certificated in accordance with the applicable regulations; it was not equipped with an emergency locator transmitter.

3. The pilot of N1812H was not in possession of a portable emergency locator transmitter nor survival equipment when he departed Anchorage.

4. The weather conditions along the proposed route of flight from Anchorage to Juneau were not conducive to flight under Visual Flight Rules,

8/ Jonz, "Ice Without Fear," Flying, November 1972.
Jonz, "Light Planes and- Low Temperatures," National Pilots Association Service Bulletin, Vol. XII, No. 1, January 1972, and Vol. XII, No. 2, February 1972.

PROBABLE CAUSE

The Safety Board is unable to determine the probable cause of this accident from the evidence presently available. If the aircraft is found, the Safety Board will continue the investigation and make a determination as to the probable cause of the accident.

RECOMMENDATION A-73-1

The National Transportation Safety Board recommends that:

> The Federal Aviation Administration, through its accident prevention staff, make wide dissemination of the details of this accident to the general aviation community, particularly to those pilots and operators involved in operations in remote and environmentally hostile areas.

BY THE NATIONAL TRANSPORTATION SAFETY BOARD

/s/ JOHN H. REED
Chairman

/s/ FRANCIS H. McADAMS
Member

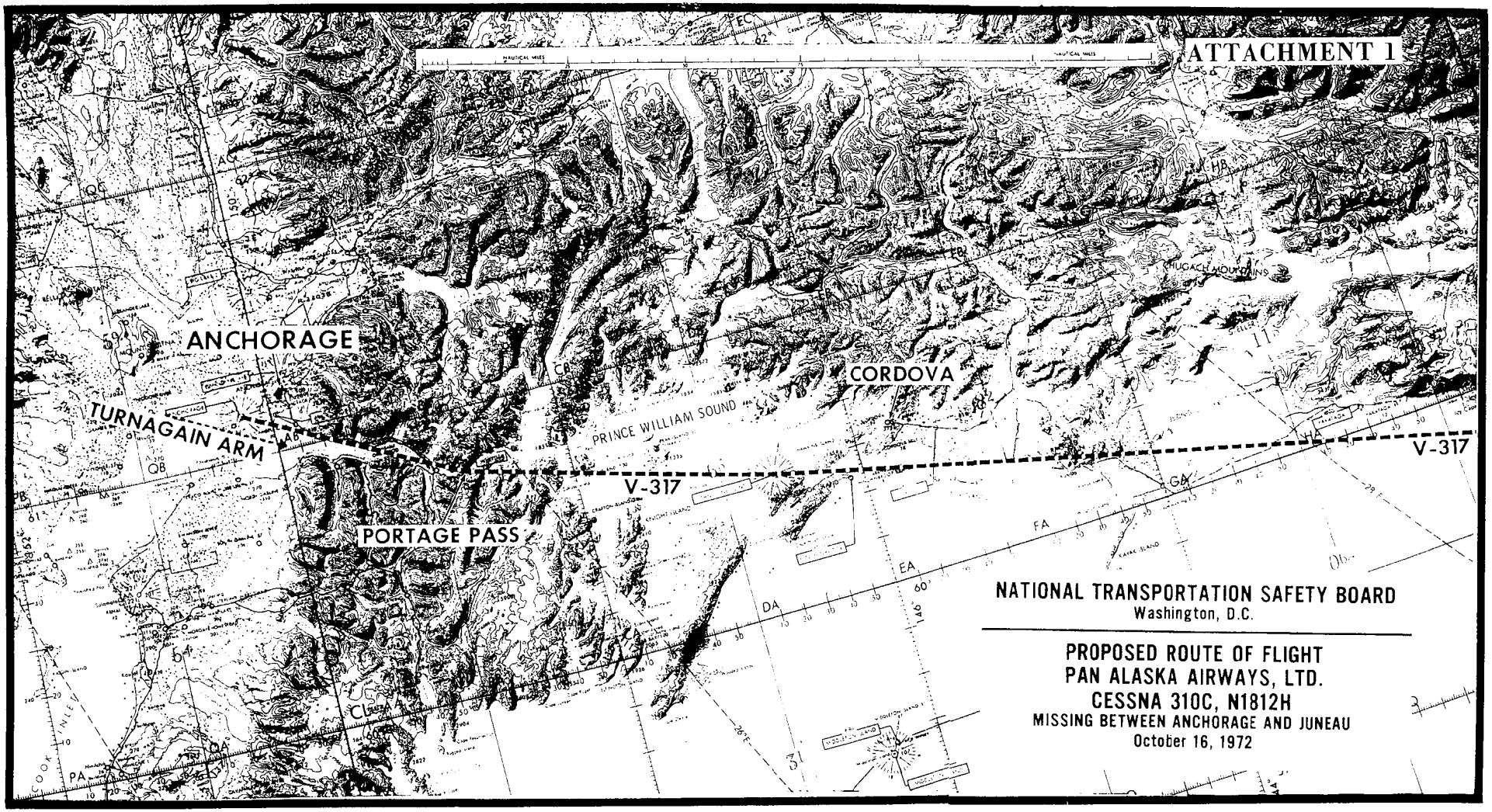
/s/ LOUIS M. THAYER
Member

/s/ ISABEL A. BURGESS
Member

/s/ WILLIAM R. HALEY
Member

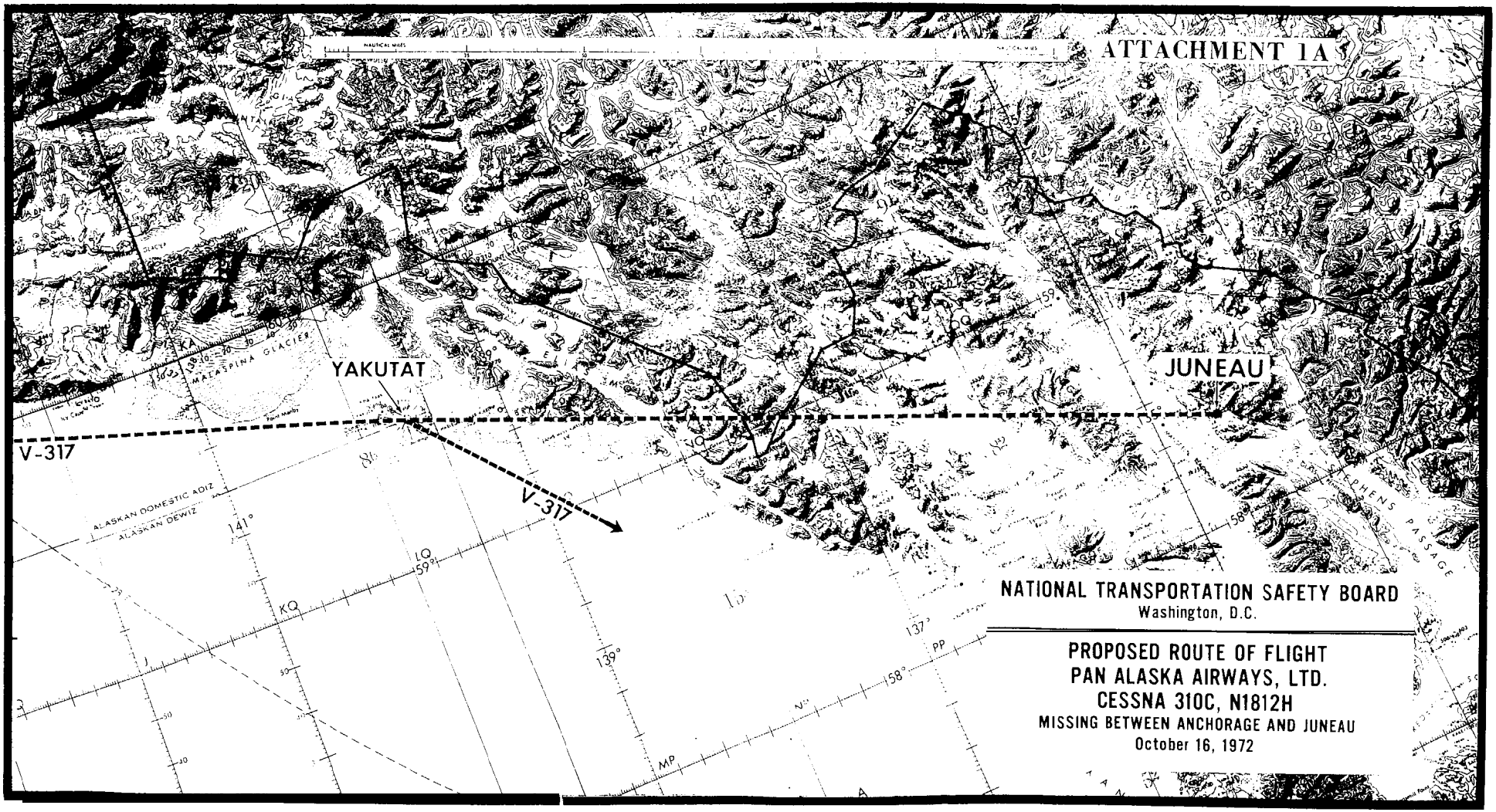
January 31, 1973

ATTACHMENT 1



NATIONAL TRANSPORTATION SAFETY BOARD
Washington, D.C.

PROPOSED ROUTE OF FLIGHT
PAN ALASKA AIRWAYS, LTD.
CESSNA 310C, N1812H
MISSING BETWEEN ANCHORAGE AND JUNEAU
October 16, 1972


ATTACHMENT 1A
YAKUTAT
JUNEAU
V-317
V-317
NATIONAL TRANSPORTATION SAFETY BOARD
Washington, D.C.
PROPOSED ROUTE OF FLIGHT
PAN ALASKA AIRWAYS, LTD.
CESSNA 310C, N1812H
MISSING BETWEEN ANCHORAGE AND JUNEAU
October 16, 1972

ATTACHMENT 2

AVIATION WEATHER FORECASTS

The aviation terminal forecasts, issued at 0155 and valid from 0200 to 1400, were, in part, as follows:

Cordova - 0500 to 1400

1,000 feet scattered, ceiling 1,800 broken, visibility 4 miles, light rain, fog, occasional ceiling 800 feet broken, 1,500 feet overcast, visibility 2 miles, light rain, fog.

Yakutat - 0200 to 1400

Ceiling 500 feet overcast, visibility 1/2 mile, fog occasional light drizzle, variable to ceiling 800 feet overcast; visibility 2 miles in fog.

Sitka - 0200 to 1400

Clear, sky partly obscured, visibility 1/2 mile, fog.

Juneau - 1000 to 0200

5,000 feet scattered, visibility 7 miles or more.

The aviation area forecasts, issued at 0133 and valid from 0200 to 1400, were, in part, as follows :

North Gulf Coast

400 feet scattered, 800 to 1,200 feet overcast, visibility 1/2 to 3 miles, light rain, light drizzle, fog, lifting locally to 3,000 feet overcast, light rain. Tops layered to 20,000 feet. South to southeasterly surface winds 30 to 40 knots.

Southeast Alaska

Generally ceiling and visibility unlimited, except patches locally 0 to 300 feet obscured, visibility 1/4 mile in fog.

Clouds and Weather

Cook Inlet, Susitna Valley, eastern third 3,000 feet broken, 12,000 feet overcast, top 15,000 feet, occasional light rain, mainly southern Inlet but moving northward during the period, Surface winds southeasterly to southerly 15-30 knots and gusty with locally 45 to 60 knots through passes and canyons.

Passes

Chickaloon open and turbulent. Portage closed.

SIGMET 1/

Cook Inlet, moderate to locally severe turbulence with strong winds, showers, and strong updrafts and downdrafts .

The wind and temperature aloft forecast, valid for use from 0600 to 1200, was as follows:

Altitude (Feet m.s.l.)	Direction (true)	Speed (knots)	Temperature (C)
Anchorage			
3,000	140°	26	
6,000	170°	34	-1°
9,000	180°	43	-6°
12,000	190°	52	-12°
Yakut at			
3,000	170°	13	
6,000	180°	17	-2°
9,000	200°	23	-3°
12,000	220°	33	-8°

1/ An advisory concerning weather of such severity as to be potentially hazardous to all categories of aircraft,

ATTACHMENT 3

PILOT INFORMATION

Mr. Don Edgar Jonz, aged 38, was the president, chief pilot, and sole stockholder in Pan Alaska Airways, Ltd. He held Air Transport Certificate No. 1269335 with commercial privileges in airplane multi-engine, land and sea, and single-engine sea. He also held an airplane and instrument flight instructor rating.

As of May 31, 1972, Mr. Jonz had reported to the FAA a total pilot time of 17,000 hours, including 11,900 hours of cross-country time, 10,065 hours of multiengine time, and 1,470 hours of actual instrument time. Mr. Jonz successfully completed a flight check in a Cessna 310 on August 21, 1972. He successfully passed an instrument flight check in a Piper PA-31 on October 10, 1972. His first-class medical certificate was last issued, without limitation, on May 11, 1972.

ATTACHMENT 4

AIRCRAFT INFORMATION

N1812H had a total *time* in service of 3,177.2 hours. It was powered by two Continental 10-470-D engines, each equipped with a Hartzel Model HC-A2XF-2 propeller.

The left engine, Serial No. 75309-9-D, had a total time in operation of 3,057.6 hours, including 1,182.6 hours since major overhaul. The right engine, Serial No. 75008-8-D, had a total time in operation of 3,032.6 hours, including 400.6 hours since major overhaul.

INVESTIGATION AND HEARING

Investigation

This accident was investigated by the Safety Board's Field Office, located in Anchorage, Alaska, under the direction of an Investigator in Charge from the Board's Washington Office. The Federal Aviation Administration was aparty to the investigation.

Public Hearing and Depositions

A public hearing was not held. The depositions of 16 individuals were taker. by the Board's investigators. These depositions were taken in Anchorage, Fairbanks, and Juneau, Alaska,

Preliminary Report

A preliminary report was not issued.