

TECHNICAL REPORT DOCUMENTATION PAGE

1. Report No. NTSB-AAR-76-6		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle Aircraft Accident Report - Ketchum Air Service, Inc., DeHavilland Beaver DHC-2, N64392, Near Kijik, Alaska, September 12, 1975		5. Report Date February 25, 1976		6. Performing Organization Code	
		8. Performing Organization Report No.		7. Author(s)	
9. Performing Organization Name and Address National Transportation Safety Board Bureau of Aviation Safety Washington, D. C. 20594		10. Work Unit No. 1746		11. Contract or Grant No.	
		13. Type of Report and Period Covered Aircraft Accident Report September 12, 1975		14. Sponsoring Agency Code	
		12. Sponsoring Agency Name and Address NATIONAL TRANSPORTATION SAFETY BOARD Washington, D. C. 20594		15. Supplementary Notes	
17. Key Words Weight and balance, c. g., heavily loaded, stall, loss of control, low altitude, sightseeing, fuel load, flight following, search and rescue		18. Distribution Statement This document is available through the National Technical Information Service, Springfield, Virginia 22151			
19. Security Classification (of this report) UNCLASSIFIED		20. Security Classification (of this page) UNCLASSIFIED		21. No. of Pages 21	
				22. Price	

TABLE OF CONTENTS

	Page
Synopsis	1
1. Investigation	1
1.1 History of the Flight	1
1.2 Injuries to Persons	3
1.3 Damage to Aircraft	3
1.4 Other Damage	3
1.5 Crew Information	3
1.6 Aircraft Information	3
1.7 Meteorological Information	5
1.8 Aids to Navigation	5
1.9 Communications	5
1.10 Aerodrome and Ground Facilities	5
1.11 Flight Recorders	5
1.12 Aircraft Wreckage	6
1.13 Medical and Pathological Information	7
1.14 Fire	7
1.15 Survival Aspects	7
1.16 Tests and Research	8
1.16.1 Powerplants Examination	8
1.16.2 Performance	8
1.17 Other Information	9
1.17.1 Flight Plans	9
1.17.2 Pilot Responsibilities	10
2. Analysis and Conclusions	10
2.1 Analysis	10
2.2 Conclusions	13
(a) Findings	13
(b) Probable Cause	13
3. Recommendations	14
Appendixes	
Appendix A - Investigation and Hearing	15
Appendix B - Crew Information	16
Appendix C - Aircraft Information	17
Appendix D - Probable Flight Track	18
Appendix E - OAS Safety Management Release	19

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D. C. 20594

AIRCRAFT ACCIDENT REPORT

Adopted: February 25, 1976

KETCHUM AIR SERVICE, INC.
DEHAVILLAND BEAVER DHC-2, N64392
NEAR KIJIK, ALASKA
SEPTEMBER 12, 1975

SYNOPSIS

About 1651 Alaska daylight time on September 12, 1975, a Ketchum Air Service, Inc., DeHavilland Beaver DHC-2 (N64392) crashed into a mountain side about 11 nmi, north of Kijik, Alaska.

The flight was being operated for the orientation and training of National Park Service employees and originated from Lake Hood, Anchorage, Alaska. The aircraft crashed while returning to Lake Hood via Lake Clark Pass, Alaska. The eight persons aboard were killed, and the aircraft was destroyed. The weather was clear, visibility was good, and there was no turbulence.

The National Transportation Safety Board determines that the probable cause of this accident was the pilot's loss of aircraft control while flying a heavily loaded aircraft at an altitude too low to effect recovery.

Although the Safety Board could not determine the reasons for the loss of control, it believes that control was lost when the pilot became preoccupied while conducting sightseeing activities and inadvertently stalled the aircraft.

1. !INVESTIGATION

1.1 History of the Flight

On September 12, 1975, a DeHavilland Beaver DHC-2 (N64392), owned by Ketchum Air Service, Inc., was chartered by the National Park Service under the regulations of the Office of Aircraft Services (OAS), U. S. Department of Interior, to be used as a public aircraft

for an orientation and training flight for Alaska Task Force personnel of the National Park Service.

According to the aircraft owner, the pilot fueled the aircraft, performed preflight checks, checked the weather, and initiated a "canned" 1/ company VFR flight plan from Lake Hood, Anchorage, Alaska, to Twin Lakes, Alaska, via Merrill Pass and return to Lake Hood via Lake Clark Pass. A flight plan was not filed with the Federal Aviation Administration (FAA). The seaplane departed Lake Hood at 1330. 2/

According to National Park Service personnel, such an orientation flight usually would follow the north shoreline of Cook Inlet then go through Merrill Pass, overflying numerous lakes in an area west-southwest of the pass before landing at Twin Lakes. After takeoff from Twin Lakes, the flight normally would head southwest to see some other lakes in the area, continue south to Lake Clark, and then proceed back to Lake Hood via Lake Clark Pass. This route would include numerous scenic attractions. (See Appendix D.) According to a trip log which was prepared by a passenger and which was found in the wreckage, the flight had taken the usual route to Twin Lakes and had landed there at 1520.

While at Twin Lakes, a National Park Service employee was to contact a photographer who was making a film of Alaska wildlife for the Park Service. Although the Park Service personnel did not contact the photographer, he stated that he saw N64392 fly over his position while he was at the western end of the western lake of Twin Lakes. He stated that N64392 came from the direction of Turquoise Lake and continued toward the eastern lake where his cabin is located. About 1 1/2 hours later, he again saw N64392 as it was flying toward the southwest at about 400 feet. 3/

When the aircraft did not arrive at Lake Hood as scheduled, Ketchum Air Service, Inc., assumed the flight to be safe at Twin Lakes, and consequently did not report the plane missing until 1245 on September 13. The U. S. Air Force Rescue Coordination Center immediately dispatched search

-
- 1/ A flight plan for a flight route that is maintained on file until required.
2/ All times herein are Alaska daylight time, based on the 24-hour clock.
3/ All altitudes herein are mean sea level.

and rescue aircraft. At 1730 on September 13, the missing aircraft was located. It had crashed into the southeast side of a steep mountain located about 12 nmi, southwest of Twin Lakes. The terrain near the crash site and southward toward the north shore of Lake Clark is generally descending. The crash site was at latitude 60° 27'N and longitude 154° 11'45"W; the elevation was 1,200 feet. The accident occurred in daylight.

1.2 Injuries to Persons

<u>Injuries</u>	<u>Crew</u>	<u>Passengers</u>	<u>Others</u>
Fatal	1	7	0
Nonfatal	0	0	0
None	0	0	

1.3 Damage to Aircraft

The aircraft was destroyed.

1.4 Other Damage

None.

1.5 Crew Information

The pilot was certificated and qualified for the flight according to FAA and Department of Interior regulations. (See Appendix B.)

1.6 Aircraft Information

The aircraft was certificated and maintained in accordance with FAA regulations. (See Appendix C.)

N64392 was overhauled and converted to a seaplane in June 1974, by an FAA approved repair station. After the aircraft was overhauled and converted, it was weighed on certified scales. Its empty weight and center of gravity (c. g.) when empty were 3,171.21 lbs. and 1.6 in., respectively.

The maximum allowable gross weight for the seaplane was 5,090 lbs. and the forward and aft c. g. limits were -1.25 in. and -6.11 in., respectively. The maximum useful load for the aircraft was 1,918.79 lbs.

Since the aircraft's weight was obtained by actually weighing it, this weight was used to calculate the possible gross weights of the aircraft.

The fuel capacity of the aircraft was as follows: 35 gal. in the front tank, 35 gal. in the center tank, 25 gal. in the rear tank, and 43 gal. in the wingtip tanks. The wing fuel gravity feeds into the front tank when selected by the pilot.

The DHC-2 Beaver Flight Manual recommends that the fuel be used in the following sequence: Use the front and wingtip tanks alternately until all of the fuel in the wingtip tank has been drained into the front tank. The manual then recommends that either the center tank or the rear tank be used.

The exact weights and c. g. 's of N64392 when it departed Lake Hood and when it crashed could not be determined because there is insufficient information regarding the aircraft's fuel load on departure.

The owner stated initially that N64392 had a 6-hour fuel load (fullload); however, he later stated that although he saw the pilot fuel the aircraft, he was not sure of the amount of fuel placed aboard. He estimated that the aircraft departed Anchorage with a gross weight of 5,090.0 lbs.; a c. g. of -6.07 in. and a fuel load of 115 gallons.

Assuming that the aircraft departed with a full fuel load of 138 gal., plus the 20 gal. that was being carried in the floats of the aircraft and using exact weights of the pilot and the passengers as given by the coroner and the weights of all personal items aboard, the Safety Board estimated the gross weight of the aircraft when it departed Anchorage to be 5,350 lbs. -- 260 lbs. over the allowable gross weight. The Safety Board estimated the c. g. to be -6.58 in. -- 0.47 in. aft of the allowable aft c. g. limit.

Through conversations with the manufacturer and reference to the cruise power chart in the aircraft flight manual, a fuel consumption rate of 25 to 28.5 gallons per hour was estimated for the rpm and manifold pressure that would have been necessary for N64392 to maintain an adequate cruise airspeed at a takeoff gross weight of 5,350 lbs. Assuming this fuel consumption rate and assuming that the fuel was managed as suggested by the manufacturer, the gross weight at impact would have

been about 4,907 lbs. and the c. g. would have been -5.35 in. -- 183 lbs. below maximum gross weight and .76 **n** forward of the maximum allowable aft c. g. limit.

1.7 Meteorological Information

No record was found to indicate that the pilot had been briefed on the weather; however, according to the owner, the pilot checked the weather.

Aviation area forecasts indicated that the weather in the area of the accident was clear and that visibility was good. The winds were calm. Conditions were not conducive to turbulence and pilots reported that there was no turbulence at low levels.

About the time of the accident, the Port Alsworth weather facility, located about 14 miles from the crash site, reported 4,000 feet scattered with a visibility of 40 miles. A weather satellite photograph of the area taken shortly after the accident showed the accident area to be clear.

1.8 Aids to Navigation

Not applicable.

1.9 Communications

There were no known communications between N64392 and any facility after the aircraft left Anchorage.

The standard company flight plan for the flight involved listed Lake Hood Unicom for use in company flight following. Lake Hood Unicom has a maximum power of 10 watts and is adequate only within about 25 miles of Anchorage.

1.10 Aerodrome and Ground Facilities

Not applicable.

1.11 Flight Recorders

Flight data and cockpit voice recorders were not installed nor were they required.

1.12 Wreckage

The aircraft crashed into a 400 slope on the southeast side of a steep, heavily wooded mountain side. The aircraft's flightpath angle into the trees was about 75°. Impact damage to the aircraft indicated a nosedown attitude of about 40° when it struck the ground. Both wings struck trees before they hit the ground. The propeller cut a slash through one tree that was 14 in. in diameter.

The left wing hit the ground on the up-hill side just before the left float hit the ground. The engine created a 20-foot-long furrow when it made ground contact.

The float attach struts collapsed. The left float was damaged extensively from the nose of the float to about 1/2 its length. The right float came to rest beneath the right side of the aircraft; it also was damaged extensively. All of the float strut fittings and severed struts were examined for preimpact failures; examination indicated that all failures were caused by overloads.

The fuselage was crushed upward and had buckled. The top of the fuselage was severed behind the trailing edge of the wing. The door of the aircraft separated during impact.

The control column was positioned to the left side of the cockpit. The control cables were connected to their respective surfaces. The trim on the elevator was in a slight nosedown position. The rudder trim was in a position that would have resulted in a slight left rudder input. The wing flaps were up.

The surfaces of the wings and tail were damaged extensively from tree contact. The aircraft had wingtip tanks installed; both tanks were damaged and ruptured. The left tip tank contained about 1/2 gallon of fuel in the rear of the tank.

The front, center, and rear fuel cells, which are installed below the cabin floor, were ruptured. Considerable fuel had spilled onto the ground; fuel odor was apparent in the thick ground cover about 15 feet downhill from the aircraft. No fuel was found in the fuel lines, fuel pump, or carburetor. The fuel lines and carburetor were damaged by impact. The fuel selector was positioned on the center tank.

Four 5-gallon STC-approved gas cans were found in the forward section of the floats. The cans disclosed evidence of hydraulic rupture, as if they were full of liquid at the time of impact. The bottom of the cans had ruptured, but the cans had not been crushed.

The aircraft's clock had stopped at 1651. The electric tachometer was jammed at 1.850 rpm.

1.13 Medical and Pathological Information

A post-mortem examination of the pilot revealed no evidence of preexisting disease and toxicological tests were negative.

1.14 Fire

There was no fire.

1.15 Survival Aspects

This was not a survivable accident; all aircraft occupants were killed on impact.

Ketchum Air Service, Inc., notified the U. S. Air Force Rescue Coordination Center that the seaplane was missing at 1245 on September 13. Military and Civil Air Patrol aircraft searched more than 1,000 square miles before sighting the aircraft at 1730 in a wooded area. Its emergency locator transmitter (ELT) was transmitting, but the signal could only be received by an aircraft flying directly over the wreckage. Because of approaching darkness, two Air Force pararescue specialists parachuted to the crash site and determined that all occupants of the aircraft were dead. On September 14, a rescue team composed of U. S. Air Force, Alaska State Police, and Safety Board personnel went to the crash site.

The seating position of each occupant was recorded. The front seats failed at their floor attachment fittings. The front seat legs were buckled; the seatbelts on these seats were attached to the seats and did not fail.

The rear, sling-type seat remained in position, and the three seatbelts which were attached to cargo tiedown bolts did not fail.

1.16 Tests and Research

1.16.1 Powerplant Examination

Examination of the engine did not reveal any condition that could have contributed to the accident. The spark plugs were in good condition and evidenced minimal wear. The walls of the cylinders throughout the area of piston travel were smooth. Cylinder No. 1 was like new and showed no signs of wear. The exposed positions showed no evidence of distress or markings that would suggest engine over-speed. The intake and exhaust valves and valve seats were in good condition with no indication of burning or pitting noted. The articulating assemblies of the power section were intact with the only damage being as the result of impact. The piston rings moved freely within their respective grooves. There was no heat damage.

Disassembly and inspection of the accessories and components of the engine did not disclose any preexisting discrepancies. The damaged carburetor, fuel pump, propeller governor, and tachometer generator were removed, inspected, and tested. All components were serviceable except the impact damaged carburetor. The carburetor was disassembled. There was no contamination noted and all parts that were not damaged by impact were in working condition.

The propeller was torn down and inspected. The leading edges of all the blades showed rotational gouges and scrapes. The range of blade angles approximated cruise rpm. No mechanical discrepancies or indications of contamination were found.

1.16.2 Performance

Following the accident, the Safety Board requested that the manufacturer supply information regarding the flight characteristics of a heavily loaded DHC-2 Beaver with a c. g. near its aft limits. They stated that recovery from a stall under those conditions is more difficult than with a middle or forward c. g., and that more time and altitude is required in which to recover. They also stated that there is a change in the stall characteristics of a Beaver that is at cruise power and is over its maximum gross weight and its aft c. g. limits. In this condition, the wing drop becomes more difficult to control and is coupled with a greater sink rate at the stall; therefore, more altitude is required for recovery.

The manufacturer also suggested that the pilot may have used fuel from his front tanks rather than from his aft tank. This would have caused the c. g. to move farther aft, with resultant lighter elevator forces and a more limited nosedown pitching ability.

1.17 Other Information

1.17.1 Flight Plans

All aircraft chartered by the OAS in the State of Alaska are operated as public aircraft and must be operated in compliance with the aircraft rental provisions of the OAS.

Paragraph 6 of the OAS rental provisions provides that:

"No flight shall begin without filing a flight plan. The best available weather data is obtained and evaluated prior to filing flight plans. Flight plans are filed utilizing the FAA communication facilities, when available. If FAA facilities are not available, plans are filed through the using government agency facilities."

The above requirement, however, has not been enforced by OAS because of the numerous flights departing remote areas where such facilities are not available. However, flight service station facilities are conveniently available in the Anchorage area.

Search and rescue procedures are started automatically 30 minutes after the estimated time of arrival if an FAA flight plan is not closed.

The pilot of N64392 initiated a company flight plan in accordance with the company's flight operations manual. This type of flight plan lets company personnel know that the aircraft is scheduled for a flight, and that flight following is necessary when the aircraft departs.

This standard flight plan lists three types of aircraft with three basic sets of data. The plan lists 3 hours en route with 3 hours 45 minutes fuel for each of the three types of aircraft. It also lists a true airspeed of 100 kn (115 mph) for a DHC-2.

Before the crash, N64392 had taken off twice and had been airborne about 2 hours 26 minutes. It had traveled about 202 nmi. and had about 144 nmi of travel remaining.

Section 5.01, Paragraph 4A4 of the company's manual states:

"The person responsible for flight scheduling will notify the nearest FAA Flight Service Station in the event a company aircraft becomes overdue or missing."

The company's president notified Federal authorities of the missing aircraft 20 hours 15 minutes after the flight duration time on company's flight plan had elapsed, and 19 hours 30 minutes after the company flight plan's estimated fuel on board had been exhausted.

1.17.2 Pilot Responsibilities

Weight and balance (paragraph 5.03) and fuel planning (paragraph 5.04) of Ketchum Air Service, Inc., flight operations manual place the responsibility on the pilot for the proper loading and the proper fueling of an aircraft.

On September 12, 1975, the National Park Service employee who arranged for the flight talked by phone with personnel at Ketchum Air Service, Inc., to supply the weights of the seven passengers who would be aboard. However, Ketchum Air Service, Inc. could not establish if the pilot had computed the weight and balance for the flight.

2. ANALYSIS AND CONCLUSIONS

2.1 Analysis

There was no evidence of any failure or malfunction of aircraft structures, systems, or components. The aircraft was currently certificated as airworthy. The review of the maintenance records gave no indication that maintenance practices could have contributed to the accident. Examination of the powerplant and onscene evidence showed that it was developing relatively high power at impact. Weather was not a factor, and there was no turbulence reported in the area.

The pilot was certificated properly and qualified for the flight; there was no evidence of pilot incapacitation.

The Safety Board concludes from the evidence that the aircraft was loaded heavily and had a c. g. near its aft limits; however, the exact amount of fuel and the exact position of its c. g. could not be determined.

At the time the accident occurred, the aircraft had flown about 202 nmi and had about 144 nmi remaining to return to Anchorage. If the aircraft was capable of maintaining a true airspeed of 100 kn, as indicated by the company's flight plan, the minimum time en route from the accident site to Anchorage would have been about 1 hour 28 minutes. If the flight had been completed successfully, it would have been air-borne for 3 hours 54 minutes, and the aircraft would have used about 98 gallons of fuel. If the tip tanks were empty, as assumed by the aircraft owner, there would have been 95 gallons of fuel available in the main tanks--3 gallons less than needed to complete the flight. Therefore, the pilot would have had to add the 20 gallons of fuel that were being carried in the 5-gallon cans in the floats to the main tanks before the aircraft could return.

These fuel cans were ruptured hydraulically, indicating that fuel was in the cans at impact. Therefore, since the fuel had not been added while the aircraft was on the water at Twin Lakes and since only one landing is usually made on a flight of this nature, it is probable that the pilot considered the fuel remaining in his main tanks to be sufficient for the return trip to Anchorage.

In view of the above evidence and the owner's initial statements that the aircraft had 6 hours of fuel on board, and since the pilot knew of the variations a sightseeing tour might take, the Safety Board believes that the aircraft was carrying more fuel than was assumed by the owner in his postaccident computations.

The telephone conversations between the National Park Service personnel and Ketchum Air Service, Inc., regarding passenger weights indicated concern regarding the weight and balance of the aircraft. However, there is no evidence that the weight and balance was actually computed nor that less than a full load of fuel was carried on the flight.

Although remote, the possibility exists that the pilot did not use the rear fuel as soon as possible after all wing fuel had been used. If he did not, the c. g. would move farther aft and would cause the control situation to worsen as fuel was burned off.

With a c. g. near the aft limits, static stability decreases, the stick forces are lighter, and stall recovery is more difficult.

The aircraft's 75° descent angle and 40° nosedown attitude at the time of impact indicates that it was not under control or that control had not been regained effectively before it crashed.

Since the aircraft and powerplant were found to have been operational before impact, the only remaining situation which could have caused the loss of control of the aircraft would be passenger movements or interference and airspeed bleedoff from an incorrect flight control input while the pilot was being distracted from his primary duties.

Passenger movement can be discounted since the passengers were seated so closely together and any movement would have been difficult after the aircraft became airborne. In addition, had the passengers been moving when the aircraft became uncontrolled, they would not have had time to reseat themselves and fasten their seatbelts. Rescuers found all the occupants in their seats with their seatbelts fastened.

The remaining possible cause of the loss of control is an inadvertent entry into a stall as a result of the pilot's failure to monitor adequately his flight condition while being preoccupied with other activities. If the pilot became engrossed in showing his passengers the scenery while flying a few hundred feet above the terrain, he may have neglected to monitor the attitude of the aircraft relative to its airspeed.

After considering all of the evidence available, the Safety Board concludes that the pilot failed to adhere to safe operating procedures by allowing his attention to be diverted to the degree that his aircraft stalled and he lost control at an altitude too low to effect recovery.

The Safety Board is concerned by the aircraft owner's inadequate flight following and his late notification of the missing aircraft. Although the owner believed the flight to be safe when it did not return as scheduled, he did not know where it was or what had caused the delay. Had there been adequate flight following, the aircraft would have been reported missing much sooner and the Air Force Rescue Coordination Center would have begun its rescue efforts on the day that the accident occurred.

The Safety Board also believes that the OAS should enforce its requirement for flight plans to be filed with the FAA where FAA facilities are available. If a flight plan had been filed in this case, search activities would have begun 30 minutes after the aircraft's filed estimated time of arrival,

2.2 Conclusions

a. Findings

1. The pilot was certificated properly and qualified for the flight.
2. The aircraft was certificated properly and was airworthy.
3. The powerplant was developing considerable power at impact.
4. The weight and balance of the aircraft at the time of the accident could not be determined.
5. The aircraft crashed from an out-of-control condition before recovery could be effected.
6. **An** FAA flight plan was not filed.
7. Company flight following of the aircraft was inadequate.
8. The aircraft owner did not notify search and rescue authorities until the aircraft had been overdue for about 19 hours.

b. Probable Cause

The National Transportation Safety Board determines that the probable cause of this accident was the pilot's loss of aircraft control while flying a heavily loaded aircraft at an altitude too low to effect recovery.

Although the Safety Board could not determine the reasons for the loss of control, it believes that control was lost when the pilot became preoccupied while conducting sightseeing activities and inadvertently stalled the aircraft.

3. RECOMMENDATIONS

As a result of this accident, OAS has sent a "Safety Management Release" to all OAS-approved air taxi operators. (See Appendix E.)

BY THE NATIONAL TRANSPORTATION SAFETY BOARD

/s/ WEBSTER B. TODD, JR.
Chairman

/s/ FRANCIS H. McADAMS
Member

/s/ LOUIS M. THAYER
Member

/s/ ISABEL A. BURGESS
Member

/s/ WILLIAM R. HALEY
Member

February 25, 1976

APPENDIX A

INVESTIGATION AND HEARING

1. Investigation

The National Transportation Safety Board was notified of the accident at 1800 A. d. t. , on September 13, 1975, by the Federal Aviation Administration. In accordance with an interagency agreement with the Office of Aircraft Services, U. S. Department of Interior, and the National Transportation Safety Board, the Safety Board was requested to investigate the crash. Parties to the investigation included Ketchum Air Service, Inc., the Office of Aircraft Services, and the U. S. National Park Service.

2. Hearing

A public hearing was not held.

APPENDIX B

CREW INFORMATION

Captain James I. Smelcer, 27, was employed by Ketchum Air Service, Inc., on May 16, 1975. He held a commercial and flight instructor certificate with airplane multi-engine land and single engine land and sea privileges. He was instrument rated. He completed his proficiency/qualification check satisfactorily on May 30, 1975. The check was given by the air taxi operator who is an authorized FAA check pilot for his company.

According to the operator's records, Captain Smelcer had accrued 2,096 flight-hours, 125 of which were in the DHC-2. Within the last 90 days, the pilot had accrued 327 flight-hours, 114.5 of which were in the DHC-2.

Before he was checked out as a captain, the pilot had completed training as prescribed by the company's FAA approved operations manual.

Captain Smelcer held a second-class medical certificate dated October 24, 1974, with no limitations or waivers.

APPENDIX C

AIRCRAFT INFORMATION

DeHavilland Beaver DHC-2, serial No. 968, N64392, was manufactured in 1956 by DeHavilland Aircraft of Canada Limited. An airworthiness certificate was issued on June 7, 1974, and a certificate of registration was issued to Ketchum Air Service, Inc., on April 11, 1975.

The aircraft had accumulated 7,117 hours total time; it had been operated 332 hours since its last annual inspection and 33 hours since its last 100-hour inspection.

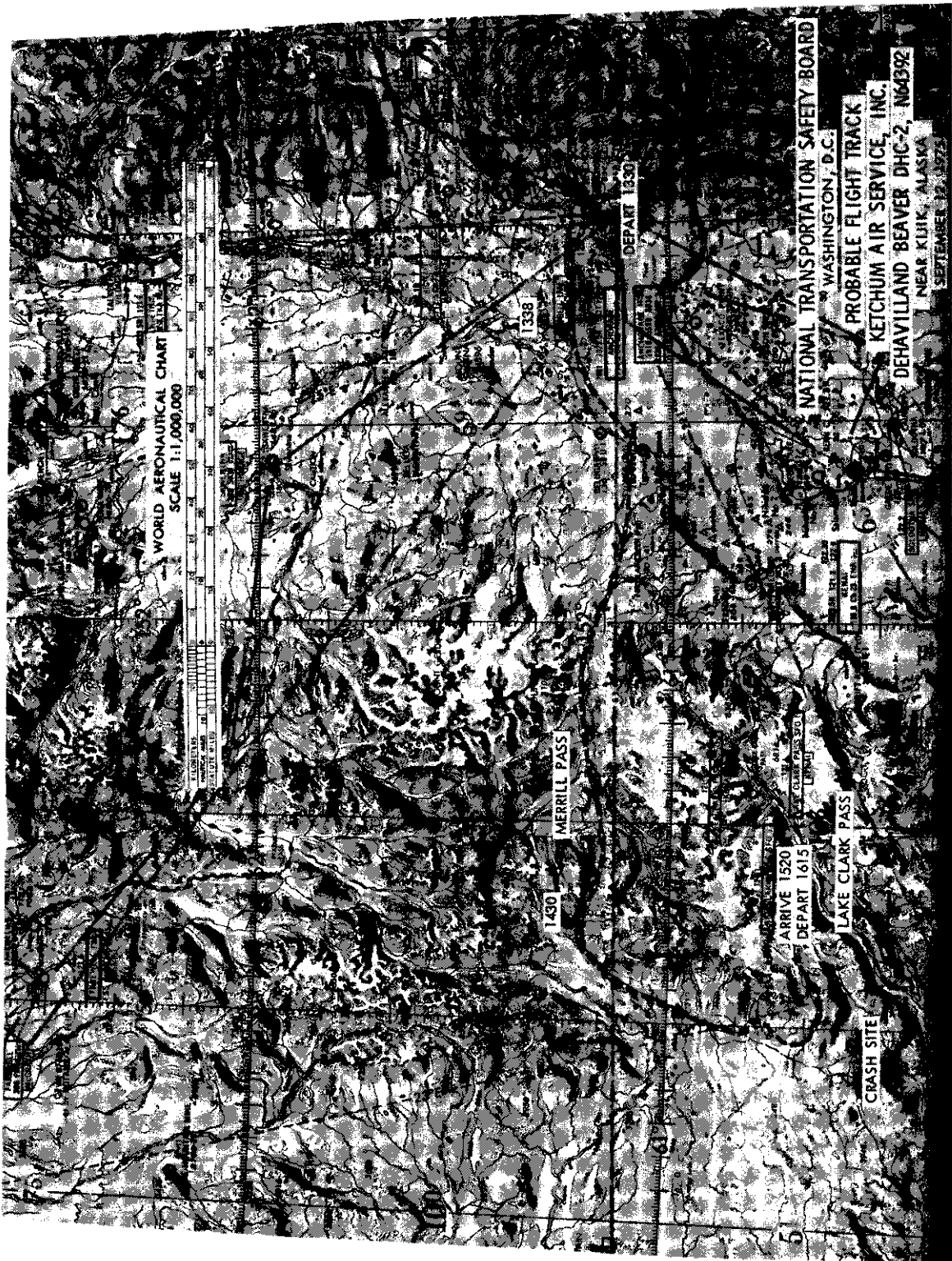
In June 1974, **the** aircraft was completely overhauled and converted to a seaplane.

The aircraft was equipped with a Pratt and Whitney, model R985-14B, serial No. 210643 engine. Time since last overhaul in January 1974, was 845 hours. The engine was installed on N64392 on June 7, 1974. The last routine 100-hour inspection was accomplished on August 28, 1975.

N64392 was equipped with a Hamilton Standard propeller with a hub design of 22D30-401 and a blade design of A6200-2. The propeller was overhauled on March 13, 1975.

All applicable Airworthiness Directives had been complied with.

APPENDIX D



APPENDIX E



United States Department of the Interior
OFFICE OF THE SECRETARY
OFFICE OF AIRCRAFT SERVICES

4343 Aircraft Drive
Anchorage, Alaska 99503

In Reply
Refer To: 1580

January 22, 1976

SAFETY MANAGEMENT RELEASE NO. 5

TO: All OAS Qualified ATCO's

SUBJECT: Safety Review 1975

A review of last year's spot checks, complaints, incidents and accidents reveal three areas that are of continuing matter of concern.

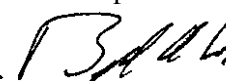
1. Flight Plans
2. Flight Following
3. Weight and Balance

In fact, investigation of a recent accident revealed the company did not file an FAA flight plan and the company flight plan did not reflect the particular flight involved nor did it comply with the company flight manual. As a result, the flight following procedures were not instituted in a timely manner and the fate of the flight was unknown until it was found crashed the following day. There were no survivors.

In this and two other complaint cases the flight plan, as filed, placed the aircraft overweight at the beginning of the trip. The failure to file adequate or accurate flight information for flight following and timely information on overdue aircraft is totally unacceptable to OAS.

Therefore, I request that you review the procedures and requirements of your company regarding flight plans and flight following, making sure that the procedures are realistic and that your company personnel comply with the intent of the FAR Part 135.29, Flight Locating Requirements.

OAS representatives have been instructed to pay particular attention, during spot checks, to the Flight Operations Flight Plan requirement (Par. 6(a)) of the OAS Aircraft Rental Provisions (Form OAS-12) and report any irregularities. If it is determined that safety has been compromised, the operator will be subject to the complaint procedures of OAS Operational Procedure Memorandum - Alaska Region No. 5.


For John G. Schommer
Regional Director