SA-418 File No. 3-0001

AIRCRAFT ACCIDENT REPORT

PILGRIM AVIATION AND AIRLINES, NC.,
De Havilland Turbo Prop DHC-6,
N124PM, In Long Island Sound
Near Waterford, Connecticut
February 10,1970

Adopted: JANUARY 27,1971

NATIONAL TRANSPORTATION SAFETY BOARD
Washington, D. C. 20591
REPORT NUMBER: NTSB-AAR-71-1

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SYNOPSIS

About 1837, February 10, 1970, Pilgrim Aviation and Airlines, Inc., scheduled air taxi Flight 203, a Turbo Prop De Havilland DHC-6, Twin Otter, N124PM, was ditched in Long Island Sound near Waterford, Connecticut.

There were three passengers and a crew of two pilots aboard the aircraft.

When the aircraft was located in about 60 feet of water and raised, relatively intact, from the bottom of the Sound several days later, none of the occupants was found in the aircraft. Subsequently, the bodies of two passengers were recovered; the other occupants are missing and presumed dead.

The ditching occurred approximately 2 hours and 16 minutes after, Flight 203 departed from Trumbull Airport, Groton, Connecticut, **on** an Instrument Flight Plan and clearance in instrument weather conditions for a scheduled flight to the John F. Kennedy International Airport, Jamaica, New York. The flight held in the New York area for an extended period, and then diverted to the Tweed Airport at New Haven, Connecticut, where it attempted and missed an instrument landing approach. At the time of the ditching, the flight was attempting to return to Trumbull Airport.

The results of this investigation indicate that the operational policies and procedures of the carrier were established in accordance with existing Federal Aviation Regulations. However, the circumstances of this accident reflected a lack of emphasis by the carrier **on** the need for effective managerial supervision of flightcrew activities on a day-to-day basis.

The investigation revealed that the flight was not properly planned; the pilot did not have an adequate knowledge of the weather conditions that would affect his flight; and there was not sufficient fuel aboard the aircraft to meet the requirements of the Federal Air Regulations.

These discrepancies were not detected by the management personnel of the carrier even though the. chief pilot was present and **on** duty at the time when the preflight preparations were conducted.

The Safety Board determines that the probable cause of this accident was fuel exhaustion resulting from inadequate flight preparation and erroneous in-flight decisions by the pilot-in-command.

On June 17, 1970, the Safety Board released a study of Air Taxi Accidents for the period 1964-1968. Based **on** this study, the Safety Board, on June 10, 1970, recommended to the Federal Aviation Administration that they

conduct a review of the existing pilot-in-command qualification requirements with a view toward specifying pilot-in-command time in type requirements. The Board also recommended that the Safety Board staff and the FAA staff meet to discuss future action to improve the safety of Air Taxi operations.

The FAA replied, June **16, 1970,** stating that the Federal Air Regulation governing Air Taxi operations had been amended April **1, 1970.** This amendment dealt with pilot-in-command requirements, but in a manner which differed from that recommended by the Board.

The first of a programmed series of meetings between the Board and the FAA staffs was held July **24, 1970.** Further meetings will be held to monitor the effectiveness of the amended Air Taxi rules.

The Board has recently reviewed the Air Taxi Accident Statistics for the period **1967** through October **31, 1970,** and as a result of that review, recommends that the industry and the FAA review the actions they took following recommendations submitted by the Board, March **14, 1968,** with a veiw to evaluating those actions and the results thereof.

1. INVESTIGATION

1.1 History of the Flight[1]

Pilgrim Aviation and Airlines Flight **203** of February **10, 1970,** was a scheduled air taxi flight from the Trumbull Airport, Groton, Connecticut, to the John F. Kennedy International Airport, Jamaica, New York. It was scheduled to depart from Groton at **1605'** and to arrive at New York at **1655.** The aircraft was a De Havilland Turbo Prop DHC-6, Twin Otter, **N124PM.** Prior to Flight **203,** this aircraft was used on Flight **216** from New York, which terminated at Groton at **1602.**

Flight **203,** with three passengers and a crew of two pilots, departed from Groton about **1621,** approximately **15** minutes behind schedule primarily because of ground delays encountered on previous flights which used the aircraft. It was on an Instrument Flight Rules (IFR) flight plan, prefiled **1** month in advance with the New York Air Route Traffic Control Center. The flight plan proposed flight at **6,000** feet[3] from Groton direct to the Saybrook Intersection, Victor Airway **16** to the Riverhead VORTAC (Very High Frequency Omni-range Station and Tactical Air Navigational Aid), Victor Airway **46** north to the Deer Park VORTAC, thence direct to Kennedy Airport. The initial IFR clearance issued to the flight through the Bradley Flight Service Station (FSS) was to the Riverhead VORTAC via direct Saybrook, Victor Airway **16,** and climb to and maintain **4,000** feet.

Shortly after takeoff, Flight **203** reported on course and was instructed to contact the New York Center. Communications were established at **1627** and the Center cleared the flight to Deer Park via its flight plan route to cross Saybrook at **4,000** feet, and then to climb and maintain **6,000** feet. At **1630,** the flight was asked for a transponder identification and its transponder beacon was identified in the vicinity of Saybrook. This position was verified by the flight, and it reported its altitude was **6,000** feet.

At **1633,** the New York Center controller recleared the flight to Deer Park, to climb to **9,000** feet, and issued it holding instructions at Deer Park. About **2** minutes later, the controller advised that **7,000** feet was open for the flight, with the possibility of no holding, and he cleared it back to **7,000** feet. The flight reported at 7,000 immediately thereafter. About **1636,** the controller told Pilgrim **203** that if holding were necessary, its EAC (expected approach clearance) time was **1706.** About **1647,** after verifying that the flight was at **7,000** feet and that it had its holding instructions and EAC, the Center controller advised the flight to contact Kennedy Approach Control on frequency **123.7** MHz. Radio contact was established at **1648** and

[1] See Attachment 1.

'All times herein are eastern standard to the nearest minute, based on the 24-hour clock.

'Altitudes unless otherwise specified are mean sea level.

the flight reported it was holding at Deer Park at 7,000 feet.

About this time, the weather conditions at the Kennedy Airport deteriorated, and some flights which were then making instrument approaches to Runway 13L (left) began missing their approaches. Because of this, instrument approaches were changed to Runway 22R (right), which had a better RVR (Runway Visual Range). At 1655, in connection with the runway change, Pilgrim 203 was recleared to hold in the Medford holding pattern. The flights that were holding during this period were given periodic, updated airport weather information and EAC times. At 1709, Pilgrim 203 was given an EAC of 1746, which the flight acknowledged.

About 1727, the Kennedy approach controller, in preparation for vectoring the Pilgrim Flight to the final instrument approach course, attempted to establish radar identification of the aircraft's target with the assistance provided by the aircraft transponder. The controller first asked the flight to "ident" on code 0773. This was unsuccessful, as was a second attempt. At 1733, still another unsuccessful attempt was made, which included having the flight recycle its transponder. At 1734, further efforts to obtain an "ident" on code 3300 were unsuccessful, and the controller advised the flight that he planned to take it out of the holding pattern for an approach without radar service."

At 1739, the Kennedy approach controller cleared Pilgrim Flight 203 to descend to 6,000 and the flight asked him when they would be "coming off the holding stack." The controller advised, ". . . unable to take you off nonradar **now,** but in about 15 minutes it will be okay." The flight replies "Okay, thank you."

At 1742, Pilgrim 203 made the following transmission: "Pilgrim 203 request New Haven if we can get there, expedite." This clearance request was coordinated with Westchester Approach Control, which has New Haven (Tweed Airport) IFR control responsibility. At 1748, the flight was cleared to descend to 4,000 feet, and at 1750, it was cleared to Pond Point, which is the final approach fix from which VOR instrument approaches are made to Tweed Airport. (See Attachment 2 for approach procedure.) The flight was then instructed to contact Westchester Approach Control on 126.4 MHz.

During the next minute, Pilgrim Flight 203 contacted Westchester Approach Control and asked for the latest Tweed weather. It was advised that the weather was: Scattered clouds 200 feet, estimated ceiling 500 feet broken, 700 feet overcast; visibility 2 miles, rain and fog; altimeter 29.46: wind variable 120" to 040" at 15 knots with gusts to 25 knots.

At 1753, the Westchester approach controller' instructed Flight 203, "Upon reaching Pond Point hold southwest on the 205 radial, right turns, EAC 1815."[6] Two minutes later the controller checked the position of the flight and, finding it was suitable for descent, cleared the flight to descend to 3,000 feet. At 1757, the flight reported at Pond Point and asked if holding were still necessary. The controller advised that it was and repeated the holding instruction.

About 1755, Flight 203 called New Haven Tower and asked the controller to advise the company (Pilgrim) it was diverting from Kennedy and would be landing at New Haven about "20 after."

At 1812, the Westchester approach controller called Flight 203 and advised that, based on a .report from the Cessna pilot who just landed, the airport was below minimums. He advised the weather was: Aircraft ceiling 200 feet broken, 500 feet, overcast: visibility 2 miles. He then asked the pilot his intentions. About 1813, after asking for and being given the Bridgeport weather, which was lower than New Haven, the flight advised it would make the approach. The flight was cleared for the approach and

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'This meant that it was necessary for the controller to increase by a factor of 4 or 5 the separation area for the Pilgrim Flit as compared to radar-separated flights.

'The Westchester approach *controller* was being checked out at the facility under supervision of the watch supervisor.

[6]The holding was necessary because. Cessna N1056R, below Pilgrim 203 at 2,000 feet, was proceeding via Bridgeport to New Haven for landing.

instructed to contact New Haven Tower on 124.0 MHz. This was done, and, at 1814, the flight advised New Haven it was inbound from Pond Point. The controller acknowledged, cleared the flight to land, and repeated the surface wind as variable 120" to 060°, 15 knots with gusts to 25 knots.

Shortly before 1817, Flight 203 reported to New Haven it had missed its approach. The tower controller immediately cleared the flight to the Madison VOR at 2,000 feet, in accordance with the standard missed-approach procedure, and instructed it to contact Westchester Approach Control on 126.4 MHz.

At 1817, communications were established with Westchester Approach Control, and the flight asked for the Groton (Trumbull Airport) weather. The controller advised he would get the weather, and gave instructions to hold at the Madison VOR at 2,000 feet. The flight replied, "203, roger. We'd appreciate it if you hurry." About 1818, the flight responded to a query from the controller that they were "level at 2,000 feet." The controller then gave the flight the Groton weather as: Measured ceiling 300 feet overcast; visibility 1-1/2 miles, moderate rain and fog; wind 100° at 15 knots, with gusts to 25 knots; altimeter 29.50. The flight repeated the ceiling and visibility and, at 1819, told the controller, "Westchester, we'd like to ah get direct Groton right now." Within the same minute, the controller advised he was getting the clearance. The flight repeated that it had to get direct to Groton and the controller replied he had to coordinate (with New York Center) and was doing so "right now."

At 1820, Flight 203 advised the Westchester controller, "Ah Westchester, 203 ah we got minimum fuel now, we gotta get to Groton." The controller, suspecting this might be the situation from the urgency suggested by the communications after the missed approach, answered the flight, "Pilgrim 203 I have advised Kennedy of that, they're working on your clearance now and I'll have something as soon as they give it to me." The flight then said, "Yeah o.k. We're going to sort of head over that way now." There was a 5-second pause and the flight added, ". . . and we've VFR [visual flight rules] on top right now."

About 1821, the controller asked the flight if it were in position to intercept Victor Airway 126 and the flight answered that it was. The controller then said, "All right Pilgrim 203 here's a clearance for you; you're cleared to the Groton VOR via Victor Airway 126 Saybrook direct, climb and maintain 3,000. . ." Ten seconds later, the flight reported it was level at 3,000 feet and asked to be cleared for an approach to Groton direct from Saybrook. The controller advised the flight that it was cleared to Groton. The flight then repeated its request to make an approach to Groton direct from Saybrook. The controller advised the flight to contact Quonset Approach Control on 134.1 MHz.

At 1822, Flight 203 called Bradley **FSS** and advised it could not contact Quonset Approach Control, it was low on fuel, and wanted clearance for an instrument approach direct to Groton from Saybrook. On request, Quonset Approach Control gave this clearance to Bradley **FSS** and, at 1823, the latter delivered it to the flight. The flight acknowledged the clearance and, at 1827, reported passing Saybrook. About 1833, the Bradley FSS specialist heard a weak radio transmission which he thought was a request from Flight 203 for the Groton altimeter setting. When he called the flight and received no reply, he broadcast the altimeter setting in the blind. No further communication was heard from the flight by any air traffic control (ATC) facility.

About 1824, the captain of Flight 203 called his company radio and said, "We're coming home with this. . . pile of junk. We ain't got any equipment working." He then asked to talk to the chief pilot. This part of the communications was recorded by Grumman Aircraft Corporation Tower before the tower was shut down at 1830. The conversation which took place between the pilot and the chief pilot was not recorded and its substance was reconstructed based primarily on the recollection of the chief pilot.

The chief pilot reported that during his conversation with the captain of Flight 203, the captain asked initially for the Groton weather which was ceiling 300 feet, overcast; visibility 1-1/2 miles, rain and fog Later, he was advised that the ceiling had lowered to 200 feet. The captain said that Kennedy would not accept him because the aircraft transponder was not working. He said he was inbound to Groton on the 270" radial of the Groton VOR, flying about 100 feet above the water, and he could see the shoreline. Asked how much fuel he had remaining, the captain answered "none," and added, in essence, that fuel exhaustion could occur at anytime. Shortly thereafter, he radioed that he had lost one engine and was going to try to reach the shore. He then said he had just lost the other engine, could not make the shore, and was going into the water off Harkness Point. This was the last transmission from the aircraft and it was estimated to have been made about 1837.

The chief pilot stated he did not recall how much time elapsed during the conversation between the captain and himself, or the time interval between the pilot's reports of the engine power **losses.** The president of the company, who heard a latter portion of the conversation, estimated the report of the first engine power loss was between about 1834 and 1835. He said that between the two reports he notified the Coast Guard of the impending emergency. The Coast Guard logged the notice at 1837.

From the various controllers involved in handling Pilgrim Flight 203 and the recorded communications between them and the flight, it was learned that although the pilots requested ATC "to expedite" their clearance, at 1742, they did not indicate outright concern until 1817, after the flight missed its instrument landing approach at New Haven. Prior to this time, about 1755, the pilots even joked with the New Haven Tower controller. The Westchester approach controller testified that in transmissions from the flight after the missed approach, concern was clearly evident. He said it was evident to such an extent that he suspected the flight might be low on fuel and he began working to obtain a clearance for the flight to Groton even before the flight asked for it. The controller said that at 1820, when the flight reported minimum fuel for the first time, he considered from the overall situation, the transmission was a declaration of an emergency.

The Westchester approach controller stated that had the pilot of Flight 203 advised him of his low fuel situation when the flight was initially given holding instructions at Pond Point, it would have been entirely possible for him to have assisted the flight. He said that the inbound Cessna could have been held at Bridgeport, allowing Flight 203 to make an instrument approach to New Haven without holding at Pond Point.

1.1.1 Pertinent Regulatory and Company Flight Preparation Requirements and Company Facilities

At the time of this accident, the policies and procedures of the company were structured within regulatory requirements and operations specifications governing its operation. The company policies and procedures placed the responsibilities for flight preparation and conduct of flight on the assigned captain. The crew was required to report to company operations 30 minutes prior to flight time, whereupon they received their aircraft assignment and passenger manifest. The captain was responsible for checking the existing and forecast weather, computing weight and balance, and determining fuel **requirements.** He was further expected to meet the captain of the terminating flight, discuss the operational status of the aircraft and any other factors which could be pertinent such as weather, traffic, and airport conditions.

If weather conditions were IFR, the captain was responsible for the selection of an alternate

airport as required by FAR's (Federal Aviation Regulations).[7]

Required weather conditions for an airport to qualify as an alternate airport are stated in the regulation.'

In determining the fuel load for a flight the pilot was expected to take into account the overall flight situation and regulatory requirement~.~

Pilgrim also used a flight coordinator in its operation who was either the president, the chief pilot, or the assistant chief pilot. The coordinator was a representative of management, and his duties were to assist the operation by handling unusual situations relating to crew and aircraft assignments, flight scheduling, and passenger load information. The coordinator had no responsibilities in the area of flight preparation or the supervision of this area. The responsibilities of the coordinator did not encompass the role of a dispatcher, and neither the coordinator nor a dispatch function was required under the regulations governing air taxi operations.

Trumbull Airport had facilities for Pilgrim pilots to obtain complete weather briefings for flight planning. Surface weather sequence reports and forecasts were available from Allegheny Airlines, which maintained a SAWRS (Supplementary Aviation Weather Reporting Station) at the airport. Also available were long-line telephones to several FSS and Weather Bureau facilities.

At Trumbull, the company maintained its own truck to service its aircraft with turbine fuel. The procedure for a pilot to obtain fuel was to dial maintenance on a company telephone telecom system. His voice would be amplified over loudspeakers at the company hangar, about 100 yards from the terminal, and maintenance personnel were required to bring the truck to the aircraft. Obtaining fuel was described as being no problem and usually an immediate service.

The company communicated with its pilots during flight by use of two advisory radios and a telephone system. One radio at Groton enabled direct communications with aircraft within 30 to 40 miles. A similar radio station of another air taxi operator at Red Bank, New Jersey, served to relay messages phoned to Red Bank from Groton. The telephone system, called the Kennedy Airport Unlimited Service, .enabled direct 5-digit dialing to the Kennedy IFR room, New York center, and Kennedy tower. The same kind of telephone service was available to various FSS and company facilities at airports on its route system. The company president said these facilities made it easy for a flight to contact the company, but it was more difficult for the company to contact a flight.

1.1.2 Flight Preparation, Flight 203

With respect to the flight preparation ,of Flight 203, the assigned pilots were seen in the terminal about 1530 and, at that time, the captain picked up the passenger list from the Pilgrim ticket agent. From this time until about 1615, when the flight taxied away from the terminal for takeoff, the activities of the pilots

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'FAR Part 135.107, as applicable to Flight 203 states, "...no person may operate an aircraft IFR unless there is an alternate airport available for the next airport of intended landing."

FAR Put 135.109, as applicable to Flight 203 states, "No person may operate an aircraft under IFR conditions unless, at the time that operation begins, weather conditions at each required alternate are at or above authorized alternate airport landing minimums for that airport and weather reports and forecasts indicate that it will remain so until the estimated time of arrival at that airport."

'FAR Put 91.83(c)(1) stater, "If an instrument approach procedure has been published in Part 97 of this chapter for that airport, the alternate airport minimums specified in that procedure or, if none are so specified, the following minimums:"

(i) "Precision approach procedure: Ceiling 600 feet and visibility 2 statute miles"

(ii) Nonprecision approach procedure: Ceiling 800 feet and visibility 2 statute miles."

(2) "If no instrument approach procedure has been published in Put 97 of this chapter for that airport, the ceiling and visibility are those allowing descent from MEA, approach and landing under basic VFR."

[9]FAR Part 91.23 as applicable to Flight 203 relative to fuel requirements states, "No person may operate an aircraft IFR unless it carries enough fuel (considering weather reports and forecasts, and weather conditions) to"

"(a) Complete the flight to the first airport of intended landing;

(b) Fly from that airport to the alternate airport: and

(c) Fly thereafter for 45 minutes at normal cruising speed."

could not be determined except for a few occurrences.

It is not known to what extent the captain or first officer of Flight **203** may have checked the weather for flight planning purposes: however, it is known that neither pilot was seen using the available facilities. It was **also** determined after the accident, from reported and forecast weather conditions at the time flight planning would have taken place, that the closest airport which fully met the regulatory requirements for an alternate was Glens Falls, New York. The distance to Glens Falls from the Kennedy Airport area is about **160** nautical miles. New Haven did not qualify as an alternate because reported conditions were below the required values and forecasts were not issued for the airport.

The captain had a short discussion with the flight coordinator, who, at the time, was the company chief pilot. The chief pilot said that in this conversation, he advised the captain to "fuel up the aircraft" or "fill it up," or words to that effect. He stated that he had done this because he knew there were only three passengers for the Flight **203** and because he was generally aware of the widespread instrument weather conditions throughout the entire area of operations, although he had not determined the specific reported weather conditions or the qualified alternate airports to the extent he would have if he were going to make Flight **203 as** pilot-in-command. He also said his advice to fuel the aircraft was not based on the amount of remaining fuel aboard the aircraft. This, he said, was because when Flight **216** terminated at Groton from New York with N124PM, he did not know the amount of fuel in the aircraft. He stated that when Flight **203** departed, he did not know if the captain had taken his advice, and it **was** not until later that calculations proved he had not.

The captain of Flight **203** met briefly with the captain of Flight **216** and asked the amount of fuel aboard the aircraft and the mechanical status of the aircraft, The captain of Flight **216** advised there were about **1,300** to **1,400** pounds of fuel in the aircraft. He later said this could have been **200** pounds more or less although he had not looked at the fuel gauges with the aircraft stopped and he said the gauges fluctuate to a degree when the aircraft was moving. With respect to its mechanical status, he told the captain of Flight **203** that the aircraft was operating normally in every respect.

1.2 Injuries to Persons

There were three passengers and the crew of two pilots aboard the aircraft at the time of the accident. Subsequently, the bodies of two passengers were recovered from the waters of Long Island Sound. The other occupants are missing and presumed dead. (See Section **1.14,** Survival Aspects, for additional information.)

1.3 Damage to Aircraft

The aircraft was damaged substantially in the ditching but may have been repairable, except for salt water corrosion effects.

1.4 Other Damage

None.

1.5 Crew Information

The pilots of Flight **203** were certificated properly and qualified to conduct the flight. (For detailed crew information, see Appendix B.)

1.6 Aircraft Information

The aircraft was properly certificated. After the accident a load manifest[10] was reconstructed for Flight **203.** This established that the gross takeoff weight of the aircraft was about **8,865** pounds, assuming **1,350** pounds of fuel. This gross weight was well under the maximum allowable of **11,579** pounds. The center of gravity would have been within limits under the existing passenger load; however, a precise location could not be determined because the seats

[10] **The preparation of a formal mitten load manifest with a copy left with the operator was not a regulatory *requirement* at the time of this accident. It became a requirement on April 1, 1970.**

used by the passengers were not known. (For detailed aircraft information, see Appendix C.)

At the beginning of the day's operation on February 10, 1970, there were no outstanding mechanical discrepancies with respect to the aircraft, and none was experienced prior to the initiation of Flight 203. The last annual inspection of the aircraft was completed on April 15, 1969, and the most recent 100-hour inspection was started and partly completed on February 7, 1970. The aircraft was used in operations on February 8 and the inspection was finished on February 9.

The transponder of N124PM was written up as inoperative on February 6, 1970, and as being intermittent on February 8, 1970. Both spare transponders owned by the company were in use at the time and the company did not perform maintenance on these units. It did, however, check connections and other items for security, etc. This was done during the 100-hour check of the aircraft. The transponder functioned normally during 13 flights on February 9, and during five additional flights on February 10, prior to Flight 203.

1.7 Meteorological Information

During the early afternoon of February 10, the synoptic situation which dominated the weather conditions for eastern Pennsylvania, southeastern New York, Connecticut, New Jersey, and adjacent coastal waters consisted of a low-pressure center south of New York, a low-pressure center in New Jersey, and a wind shift line extending eastward from the New Jersey low. The weather system was moving northeastward at about 20 knots. To the north of the wind shift line, ceilings were about 600 feet, visibilities were about 2 miles, and there was moderate rain and an easterly wind of 30 to 40 knots in gusts. South of the wind shift line, ceilings were 300 feet or lower and visibilities were under 1 mile, with light rain and drizzle. The winds were from the south.

About 1600, the wind shift line was just south of Long Island and, about 1700, it crossed over Kennedy Airport causing the deterioration in weather which took place at the airport and which necessitated instrument landing approaches to Runway 13L to be changed to Runway 22R. During this time, weather conditions also deteriorated at other airports along the wind shift line. About 1800, the wind shift line had moved into southern Connecticut, creating the same weather pattern at New Haven, Bridgeport, and other airports on both sides of Long Island Sound.

The Weather Bureau forecast for the period in which the accident took place was issued at 1345 and was valid for a 12-hour period beginning at 1400. In part it read as follows:

> "... low pressure center southern New Jersey, with trough northwestward to just west of Binghamton. Low and trough moving northeastward about 20 knots.
>
> "Coastal southeastern New York. Connecticut, coastal waters. Near and northeast of low ceiling 400-800, 2-4 miles, light rain, fog, frequent ceiling 300 overcast, 3/4 mile, moderate rain. Surface wind 060° - 090°, 25 knots gusts 40 knots, winds below 2,000 feet, 40-60 knots. Winds diminishing within 50 miles of low center. Becoming frequent ceiling 200-400, sky obscured, 1/4-1 mile, fog occasional light rain in low center. Improving about 50 miles southwest of center to ceiling 800-1,200 overcast, 3-5 miles, fog occasional 1-2 miles, light rain, fog. Occasional light snow developing over southwest sectionsby 2200 spreading northeastward throughout by 0100 (Feb. 11)Higher terrain obscured. Tops 18,000 - 20,000, lowering to 14,000 - 18,000 southwest of low."

A review of the various terminal forecasts pertinent to the area of operation of Flight 203 revealed that Glens Falls, New York, would have been the nearest, fully qualified, alternate airport for the flight. Albany, New York, could have been considered an alternate: however, this airport was forecast to go below the required alternate weather minimums for "occasional" periods.

1.8 Aids to Navigation

Aids to navigation were not involved in this accident. Examination of the transponder will be reported in Section 1.12, Wreckage.

1.9 Communications

Some communications were repeated and some irregularities in communications occurred. Considering the relatively high volume of communications during the flight, these were not numerous and none was attributable to faulty airborne or ground equipment.

1.10 Aerodrome and Ground Facilities

Not involved.

1.11 Flight Recorders

Flight Data and Voice Recorders were not required or installed in the aircraft.

1.12 Wreckage

On February 15, the aircraft was located by the use of sonar. It was resting on the bottom of Long Island Sound under about 60 feet of water. It was located about one-half mile off shore from Waterford, Connecticut, and about 5 miles from Trumbull Airport.' [1] About 1000 the next morning, divers determined that the aircraft was in an inverted position and both cockpit doors and the airstair door to the passenger cabin were partially opened. None of the occupants was in the aircraft.' [2]

The entire aircraft was recovered from the Sound on February 20 and transported to the operator's hangar at Trumbull Airport for examination.

The fuselage portion of the aircraft was relatively undamaged from the pilots' compartment rearward to the empennage. The nose section was deformed and wrinkled, and there was some damage above the windows at the first passenger seat row. The empennage was twisted to one side and partially separated along a diagonal break from fuselage station (FS) 436 to FS 466. The individual components of the empennage received little or no impact damage.

The left wing of the aircraft received major impact damage. It was separated completely from the fuselage at its wing spar to fuselage attachment point. The wing leading edge was bent and crushed downward and rearward from wing station WS 285 outward to the tip. The front wing spar was twisted and bent rearward about 2 inches from WS 310 outward to the tip. The left wing strut was broken 18 inches from its fuselage attachment point and rivets were pulled out along the entire length of the strut. The right wing received little impact damage. The wing flaps were retracted.

The aircraft structure and control systems revealed no evidence of malfunction or failure prior to impact.

The fuel system of the aircraft consists of two fuel tanks, one foreward and one aft, located below the cabin floor. Each tank is made up of four interconnected rubber cells, with one cell of each tank serving as a collector cell into which fuel is moved from the other cells through a booster pump ejector. Fuel is delivered to the engines by booster pumps. Normally, the left engine is run on fuel from the forward tank and the right engine from the air tank: however, either or both engines may be run from either or both tanks by the appropriate positioning of the fuel selector valve. The usable fuel capacities of the two tanks are 182 gallons for the forward and 198 gallons for the aft. The total amount is sufficient for about 4 hours and 20 minutes of flight.

The fuel system incorporates a fuel low-level warning light for each tank. The forward warning light comes on with 75 pounds of remaining fuel and the aft comes on with 110 pounds of remaining fuel.

Examination of the fuel system revealed that the fuel selector was positioned for operation of both engines from the aft fuel tank. The forward tank contained about one-fifth of a gallon of liquid—one-quarter was water and the remainder

[1] Latitude 41° 17′ 34″ N. and longitude 72° 08′ 10″ W.

[2] For additional information, see Section 1.14, Survival Aspects.

was kerosene. The aft fuel tank was empty. Other components of the system were either empty or contained only residual fuel. The fuel gauges, one for each of the two tanks, read "zero." The low-level fuel warning system was functional. The boost pump switches were in the "on" position for both tanks, and the aft tank boost pumps were functiond. The fuel system revealed no evidence of malfunction or failure prior to impact.

There was no mechanical malfunction or failure of the powerplants prior to contact with the water. Both propellers were feathered. The propellers on this aircraft feather automatically in the event of total power failure.

Examination of the NARCO, UAT-1 transponder installed in the aircraft revealed that the glass cover of a transmitter vacuum tube was cracked, with water inside the tube.

The screws which secure the transponder receiver board were not engaged. The encoder board, which fits against the receiver board, was secured properly, and this restricted the receiver board.

A 2-ampere, medium-lag, ceramic fuse was installed in the unit with approval of the manufacturer, instead of a 3.2-ampere slo-blow fuse called for in the macufacturer's parts list. This fuse was found blown, a condition which would cause the transponder to fail to perform its function, but would not prevent the tube heating element from receiving electrical power. With the fuse blown, the transponder would be in the same state as if standby mode were selected.

The controller on duty while Pilgrim Flight 203 was holding at Medford stated that he had experienced inability to receive a transponder target from the aircraft in the Medford area, which he later was able to receive. The communications record relating to this accident indicated some difficulty was experienced in getting transponder identification of another aircraft. That aircraft was in the same holding pattern 1,000 feet above Flight 203. In this case, transponder identification of the aircraft was subsequently made.

1.13 Fire

There was no fire involved in this accident.

1.14 Survival Aspects

At 1837, the president of Pilgrim Aviation and Airlines notified the U.S. Coast Guard at New London that one of the Pilgrim's aircraft was believed to have gone down off Harkness Memorial Park at Waterford. He gave the essence of the late communications with the flight. He also alerted units of the State and municipal police and fire departments.

Between 1839 and 1843, two vessels of the Coast Guard were dispatched to search for survivors. These vessels were on-scene between 2 and 6 minutes later. Using search lights and lookout personnel, they made sweeps along the shoreline outward in the area of Harkness Memorial Park. It was later determined that these vessels had covered the area where the aircraft was found. Other Coast Guard vessels on a lesser state of alert joined the search between 1 and 2 hours later.

The search effort for survivors was unsuccessful. It was hampered by darkness and decreasing visibility, which became near zero about 2200 and necessitated interrupting the search. As soon as visibility improved, the search was begun again and was continued for several days.

The aircraft was found with the cockpit and airstair doors open. The copilot's jacket, with the sleeves turned inside out, was found near the airstair door. There was little or no impact damage in the passenger cabin or pilot's compartment, and a total absence of evidence of bodily injury. From the standpoint of impact, the accident was survivable.

The temperature of the water of Long Island Sound at the time of this accident was 33°F. Material published by the Coast Guard and Air Force indicates that the expected survival time in water of this temperature is less than an hour.

The aircraft was equipped with 19 passenger lifejackets. These were stowed in canvas pockets secured to the underside of each seat or to the seat back. The pockets were closed by three

"Dot" fasteners. The pilots' seats were equipped with buoyant cushions and a pyrotechnic signalling kit. The company had emergency instruction cards for passenger information.

When the aircraft was recovered, all 19 passenger lifejackets were found in their stowed locations, the pilots' seat cushions were in place, and the signalling kit was found on the floor under the captain's seat. No passenger emergency instruction cards were found in the aircraft.

Aircraft ditching instructions were not contained in the Airplane Operating Data issued by the aircraft manufacturer on June 1, 1966, and revised May 1, 1969, nor were such instructions included in the operator's operating instructions. However, the company's chief pilot said instructions were given to company pilots in training sessions. The copilot was to go into the passenger cabin and instruct the passengers to put on lifejackets and assume positions for ditching. He was to open the airstair door immediately before water contact and, after ditching, to assist the passengers out of the aircraft. A copilot who flew regularly with the captain of Flight 203 reported he had been told to do these things by the captain, and also to be ready to open the emergency hatch located in the ceiling of the passenger cabin.

With full flaps extended, the aircraft stalls at an airspeed of about 45 knots. Without flap extension, it stalls between 55 and 60 knots.

1.15 Tests and Research

Fuel consumption records of the company for its Twin Otter aircraft revealed that over a period of several months, the average fuel consumption for both engines was 601 pounds per hour. On this basis, it was determined that the amount of fuel aboard N124PM at the initiation of Flight 203 was about 1,350 pounds. It also substantiated the conclusion that the aircraft was not serviced with any fuel prior to Flight 203.

The transponder from N124PM was examined and tested under laboratory conditions in an effort to establish its functional status prior to the accident. It was determined that there was salt water corrosion in the crack in the glass cover of the vacuum tube from the transmitter section. The crack itself was identified as being caused by thermal shock created by cold water contacting the tube while it was receiving electrical power. It could not be determined if the failed fuse was blown prior to its submersion in water or as a result of being submerged in water.

Although the encoder board of the transponder was held in place by the receiver board, it was subject to movement because its screws were not engaged. Tests showed that the movement was enough to reduce the sensitivity of the receiver section.

The cracked vacuum tube and blown fuse were replaced and the transponder was tested. It failed to function; however, the test cannot be considered meaningful because of the salt water corrosion damage to the overall unit. Also, this damage prevented any accurate assessment of the functional condition of various components of the unit prior to the salt water corrosion effects.

Because of the foregoing factors and a number of environmental conditions such as simultaneous garbling, antenna blanking, and vertical lobing, which can prevent an operable transponder assisted target from being received on a radarscope, it cannot be determined whether the transponder of Flight 203 was functioning when the attempts were made to obtain its transponder identification.

2. ANALYSIS AND CONCLUSIONS

2.1 Analysis

It was clear that the immediate reason for ditching the aircraft was a total loss of engine power due to fuel exhaustion. This ditching, however, was not the result of a single cause but rather the product of several acts of commission and omission, as well as other influencing factors.

The basic inadequacy in the pilot's flight preparation was that he did not have the aircraft serviced with additional fuel prior to Flight 203. This inaction can be traced most logically to his lack of knowledge of the overall weather situation. It was this situation which dictated the additional fuel to assure the safe conduct of the flight. Had the pilot possessed adequate knowledge of the reported and forecast weather conditions, he would have known that the only fully qualified alternate airport for his flight was Glens Falls, New York. This location is 160 miles from New York and the amount of fuel aboard the aircraft was insufficient for the flight to have flown to New **York,** and thereafter to Glens Falls, and arrive with the requisite 45-minute fuel reserve.

From a thorough weather briefing prior to flight, the pilot would have known that deteriorating weather conditions were following the wind shift line moving northeast about 20 knots. By determining the position of this line just before flight, he could have projected the movement of the deteriorating weather conditions. This action would have enabled him to anticipate that the conditions would reach Kennedy Airport close to his estimated arrival time, and that some traffic delay could be expected. ***Also,*** he would have realized that the various airports along both sides of Long Island Sound would fall under the influence of the same weather conditions **soon** after New York. Lastly, knowledge of the high, gusty, surface winds that were forecast would have alerted him to a real possibility that he might not be able to land at New York **and** would have to divert to another airport.

In view of the foregoing, the Safety Board finds that the pilot's weather preparation was inadequate and this inadequacy was the genesis of this accident. This is because, with thorough knowledge of the weather, the pilot certainly would have had the aircraft serviced with additional fuel. Even under the remote proposition that he decided not to add fuel, with a good understanding of the weather prior to flight, he could have anticipated some of the in-flight contingencies with which he might be faced. Such anticipation would have enabled him to evaluate the various available alternative actions, prior to flight, when his decisions could be made with more time and less preoccupation. Moreover, they could have been made unhampered by the deleterious effect that stress, created by a developing critical situation, has **on** the making of decision.

The chain of influencing factors and errors in in-flight decision by the pilot began to occur and magnify his basic error of inadequate flight preparation about the time that the flight reached the New York area and entered the Deer Park holding pattern.

The first event, which can be viewed as an influencing factor, was the deterioration in the weather at the Kennedy Airport. As a result of this deterioration, the instrument landing runway was changed from 13L to 22R. Thus, a minor or moderate traffic delay for the flight became an extended period of holding.

The next occurrence, which also can be considered an influencing factor, was the failure of the aircraft transponder **or** the inability of the Kennedy approach controller to receive its target. This was realized just as the controller was preparing to clear Flight 203 away from the holding pattern and turn it over to the final feeder controller for an instrument landing approach. Instead, this occurrence placed control procedures for the flight **on** a nonradar basis and further extended its holding period.

At 1739, the pilot of Flight 203 knew his approach to the Kennedy Airport was to be **on** a nonradar basis and his holding time was extended an estimated 15 minutes. He also should have known that the remaining fuel in the aircraft was then enough for about 1 hour of flight. It was at this time that the pilot began to make his errors in in-flight decision. The pilot, instead of remaining silent, should have told the Kennedy approach controller about his fuel situation and should have asked for assistance with a priority approach. There is **no** reason to suspect this assistance would have been denied; however, if it were denied within the next few

minutes, the pilot should have declared an emergency to obtain it. Certainly, whichever of these actions was necessary, it should have been taken before **1750,** when the flight was cleared to divert to New Haven with the remaining fuel in the aircraft down to about **47** minutes of flight. Considering the superior instrument approach facilities at Kennedy Airport, and the pilot's lack of knowledge of the traffic and weather conditions at New Haven, his decisions to ask for and accept the clearance to New Haven were questionable. The pilot should have known that the proper decision was to disclose his fuel situation and obtain assistance by the necessary means.

It is reasonable to believe that at this time the pilot was acutely aware of the amount of his remaining fuel and that, in his mind, he had selected New Haven as his alternate airport even though it did not meet the regulatory requirements.

The main support for this opinion is that at **1742,** when the clearance to New Haven was requested, the remaining amount of fuel in the aircraft was enough for about **55** minutes of flight. This amount is almost precisely that needed to fly from the Medford holding pattern to New Haven and arrive there with the required 45-minute fuel reserve. The use of the word "expedite" in the clearance request further indicates the pilot knew his fuel state and wanted the clearance quickly to stay within the alternate airport fuel requirements. Lastly, New Haven was close by, a regular airport on Pilgrim's route system, and the pilot was well acquainted with the airport and its approach facilities and procedures.

The pilot made his crucial error of in-flight decision at **1753.** At this time, he elected not to disclose his fuel problem, even in the face of a clearance to hold at Pond Point until **1815.** By this decision, he intensified the problem to a critical state and, from a [illegible] t, narrowed the available solutions to the situation to complete reliance on a successful execution of the instrument approach at New Haven. This reliance, and also the pilot's confidence in being able to make the approach successfully, is shown clearly by the relatively low level of concern in his communications before the approach, as contrasted to the meat concern reflected when the approach was missed.

It is not possible to state definitely why the instrument approach was missed at New Haven. However, it was probably because of the deterioration of the cloud condition from 200 feet scattered to **200** feet broken, which prevented the pilots from sighting the runway when they reached the minimum decision height of **380** feet m.s.l. In addition, the gusty, surface wind would have made directional control difficult.

The Safety Board finds that, despite any of the factors previously described, at **1753,** when the flight was instructed to hold at Pond Point, it was incumbent **on** the pilot to divulge his fuel situation and seek immediate voluntary or emergency assistance from the Westchester approach controller. At this time, there were still realistic alternative actions available. The flight could have been given an approach ahead of the Cessna, it could have been cleared direct to Groton, or the pilot could even have made two attempts to land at New Haven before diverting to Groton.

The Safety Board believes that considerable benefit to accident prevention would be lost unless this report advanced some of the possible reasons why the pilot **of** Flight **203** refrained from informing ATC of his ever-worsening fuel situation and did not ask for assistance in the form of priority handling. Moreover, why would he continue to remain silent when the situation could be projected to a critical state by holding at Pond Point until the expiration of the EAC, and to a state of crisis if the instrument approach to New Haven were missed? One possible reason is that the typical professional pilot has self-confidence stemming from his skill and experience. With these attributes, it becomes difficult for him to accept the possibility that he may be confronted with a situation from which he cannot extricate himself by his own actions.

Some of these attributes seem to be recognizable with respect to the pilot of Flight **203.** He elected to remain silent about his fuel

situation in the New York area and accepted an additional holding period. He then took action of his own by diverting to New Haven. There, he again elected to accept further holding at Pond Point rather than disclose his critical situation. The element of self-confidence is clearly apparent at this point because only a complete conviction that he could successfully execute the instrument approach at New Haven can explain his not declaring an emergency. While the pilot may have thought he could reach Groton after the missed approach, the Safety Board believes that the attempt was made from the lack of any other clear alternative action.

The factors stated above are difficult to relate to the pilot of Flight **203** other than in general terms. However, three statements, made by him in his radio conversation with his chief pilot just before the accident, suggest that the factors may be pertinent to some degree. The first was that only when asked his fuel state did the pilot answer none. The other two were transmissions in which he said, "We're coming home with this pile of junk, we ain't got any equipment working" and "Kennedy would not accept me because transponder wasn't working." Also, not immediately telling his chief pilot of the flight's precarious fuel situation 'suggests a continued reluctance of the pilot to disclose his emergency for the reasons already stated.

The investigation of this accident established that the operational policies and procedures of Pilgrim were structured well within the framework of the regulations governing an air taxi operation. The company's training program on new equipment was impressive. Its initial and recurrent pilot checks were equal to or in excess of the regulatory requirements, and its programs were carried out by competent personnel. Evidence of these qualities was an unbroken series of satisfactory inspections by the FAA and the absence of any fatal or serious injury accidents since inception of the company in April 1962.

Despite these qualities, the Safety Board believes that the circumstances of this accident reflect a lack of emphasis, by the company, on the need for a vigorous and aggressive managerial supervision and quality control program over pilot-in-command responsibilities on a day-to-day basis. The Board believes that, to a great extent, this deficiency resulted from an overemphasis of the premise that the pilot should be totally responsible for his entire flight, and that such supervision would be "leading him by the hand." It also seems to have resulted from an underemphasis of the possibility that a pilot might deviate from the best established practices and procedures. The Board is convinced that the best practices and procedures are only as good as the adherence to them, and that surveillance to assure adherence must be considered a vital part of any operational program.

At the time of this accident, over and above any regulatory requirement, the company used a flight coordinator position in its operation. The position was manned during all hours of flight operations by one of the company's most competent and qualified operational personnel, the president, the chief pilot, or the assistant chief pilot.

Since the company used personnel of the highest operational caliber frbm management to act as coordinators in its day-to-day operation, it seems that these personnel could assume a far greater role in managerial supervision over pilot-in-command responsibilities. The Safety Board believes that such supervision is essential to maintain an adequate level of safety in this type of operation.

In this case, the chief pilot who was on duty as coordinator did not know whether the pilot of flight **203** obtained a weather briefing; he did not know what, if any, alternate airport the pilot planned for his flight; he did not know the extent of the briefing which occurred between the terminating and originating flight captains; and, although he advised the pilot of Flight **203** to fuel the aircraft, he did not know whether this was done.

The Safety Board is aware that the coordinator's responsibilities did not encompass the areas described above. However, when the chief pilot or his assistant was on duty as a coordinator, it would seem reasonable to expect

them to verify the effectiveness of company policies and procedures, and to ensure that flightcrews were carrying out their duties in compliance with those policies and procedures.

The need for an increased emphasis on managerial supervision over pilot-in-command responsibilities, particularly preflight responsibilities is made evident from a Safety Board study[13] of all air taxi accidents during the period from 1964 to 1968. The report stated in part:

> "The pilot was cited as a cause or factor in 695 of the 995 Air Taxi accidents from 1964 to 1968 or 69.85 percent of all accidents. Within the broad causal area of 'pilot' are 60 detailed causal citations. The detailed cause-factor which was cited most often was 'inadequate preflight preparation and/or planning.' This category was cited 99 times, accounting for 10.6 percent of all 'pilot' causal citations. . . ."

In another study[14] made specifically of preflight procedures in general aviation accidents, it was stated: "The highest incidence of preflight procedure accident causes for Air Taxi Operations is fuel exhaustion. Some pilots evidently' devote too little attention to fuel requirements prior to flight."

In view of the foregoing, the Safety Board concludes that inadequate flight preparation and errors of in-flight decisions by the pilot-in-command were basic causes of this accident. Also, although not causes in the strict sense, the failure of the aircraft transponder or the ability of ATC to receive its target, and the deterioration of the weather at both Kennedy and Tweed airports can be viewed as influencing factors which took place at critical times. These influencing factors did not of themselves make the accident inevitable; however, they did compound and intensify the basic causes. Lastly, the Board believes that there could have been more effective managerial supervision over the carrier's flight operations.

[13] "Study of Air Taxi Accidents, a Statistical Summary and Analysis of a Special Segment of J. S. General Aviation 1964-1968, Report No. NTSB AAS-70-1.

[14] "Study of Preflight Procedures of General Aviation, April 1970, Federal Aviation Administration Report No. FAA-DS-70-10.

2.2 Conclusions

(a) Findings

1. The company was properly authorized and certificated to engage in scheduled air taxi operations under the provisions of Part 135 of the Federal Aviation Regulations.

2. The aircraft was currently certificated and equipped for the flight operation involved.

3. The pilots were properly certificated and qualified for the flight.

4. The pilot-in-command of Flight 203 did not follow the chief pilot's advice to service the aircraft with additional fuel and initiated Flight 203 with approximately 1.350 pounds of fuel.

5. Glens Falls, New **York,** 160 miles from Kennedy Airport, was the only fully qualified alternate airport within the area of operation of Flight 203.

6. When the flight reached the New York area, an initial minor or moderate traffic delay became an extended period of holding. This was caused by a deterioration in weather conditions which required a change in the instrument landing runway at Kennedy Airport from **13L** to **22R.**

7. ATC was unable to receive the transponder target from the aircraft for unknown reasons. This resulted in handling the flight on a nonradar basis and additional holding.

8. About 1742, the pilot requested clearance to divert the flight to New Haven. The clearance was delivered about 1750.

9. The flight reached Pond Point, the final approach fix for New Haven at 1757, with a clearance to hold at Pond Point and an EAC of 1815.

10. At 1812, the flight was cleared for an instrument approach to New Haven. A missed approach was reported at 1817.

11. About 1820, the pilot requested immediate clearance to Groton and advised ATC for the first time the flight had "minimum fuel."

12. The report of "minimum fuel" was considered a declaration of an emergency by ATC and the flight was cleared to Groton at 1821.

13. Fuel exhaustion occurred about 1837, and the aircraft was ditched in Long Island Sound approximately 5 miles from its destination, Trumbull Airport, Groton, Connecticut.

(b) Probable Cause

The Safety Board determines that the probable cause of this accident was fuel exhaustion resulting from inadequate flight preparation and erroneous in-flight decisions by the pilot-in-command.

3. RECOMMENDATIONS

In addition to the information already quoted in this report, the Safety Board's Study of Air Taxi Accidents, 1964-68, revealed that in 83.33 percent of the fatal air taxi accidents in which the pilot had 25 hours or less in the type aircraft involved, the pilot caused or contributed to the cause of the accidents. The study states in part:

"While hours flown in Air Taxi operations increased at an average rate of 4.8 percent during the 5-year period, fatal accidents increased at an average rate of approximately 18 percent per year."

The fatal accident rates per one hundred thousand hours flown for Air Taxi and for U.S. Certificated Route Air Carriers are as follows:

	Air Taxi	Certificated Route Air Carrier
1964	1.39	.269
1965	1.39	.180
1966	1.43	.125
1967	1.87	.198
1968	2.25	.197

The study also states in part:

"The Air Taxi fatality rates for 1967 and 1968 do not compare favorably with the passenger fatality rates for Scheduled Domestic Passenger Service of the U.S. Certificated Route Air Carriers. The estimated Air Taxi passenger fatality rates per 100 million passenger-miles flown were 9.29 for 1967 and 8.91 for 1968, while the corresponding rates for Scheduled Domestic Passenger Service were 0.29 in 1967 and 0.28 for 1968. These Air Taxi rates are especially alarming when it is realized that those scheduled and non-scheduled operators supplement the passenger service of Certificated Route Air Carriers. Also, alarming is the fact that both the 1967 and 1968 rates represent sharp increases over the 1964-66 rate of 7.65. The National Transportation Safety Board is aware of the difference between Air Taxis and Certificated Route Air Carriers in terms of equipment, route structures, and airport facilities. These differences should not be overlooked in comparing these rates, nor should the important similarity be overlooked, i.e., that each type of carrier is in the business of transporting passengers and cargo for hire."

As a result of the study, on June 10, 1970, the Chairman of the National Transportation Safety Board sent a letter containing two

recommendations to the Administrator of the FAA. They were that:

"(1) A comprehensive review be made of the Federal Aviation Regulation, Part 135, Subpart D, pertaining to pilot-in-command qualifications with a view toward specifying pilot-in-command time in type requirements; and

(2) the Administrator's staff meet with representatives of our Bureau of Aviation Safety to discuss in depth this Air Taxi Accident Study to determine what additional analyses would prove most fruitful in increasing safety in Air Taxi operations. Particular areas recommended for further study are certain detailed cause/factors, such as inadequate preflight preparation and/or planning or inadequate maintenance and inspection."

The Administrator responded to these recommendations in a letter dated June 16, 1970. He pointed out that to improve safety in Air Taxi operation extensive revisions were made to Part 135 of the Federal Aviation Regulations. These became effective April 1, 1970.

With respect to the Safety Board's first recommendation the Administrator stated:

"The Amendment, instead of focusing on experience in type in terms of hours, focuses on initial and recurrent training and testing—

(1) In the class of aircraft, if single-engine airplane; or

(2) In the type of aircraft, if helicopter multiengine, or turbojet."

The Administrator stated that these requirements were imposed on the air taxi operators through operating specifications in late 1968. He indicated they were producing satisfactory results as examination of the fatal air taxi record for calendar year 1969 did not show that, ". . . aircraft familiarity, namely, time in type had been a significant factor."

Regarding the second recommendation, the Administrator stated: "We welcome your second recommendation that my staff meet with representatives of the Bureau of Aviation Safety to discuss in depth the Air Taxi Accident Study. A date will be suggested to begin meetings after we have had the opportunity to review this material."

The Study of Air Taxi Accidents was released on June 17, 1970. Pursuant to the Safety Board's second recommendation, representatives of the FAA and NTSB held an initial meeting July 24, 1970. Future meetings will be held for the purpose stated in the Safety Board's second recommendation and to monitor the effectiveness of the revised Part 135 toward improved safety in Air Taxi operations.

The full text of the Chairman's letter to the Administrator and the latter's response is included with this report as Attachment 3 and 4.

The Board has reviewed its Air Taxi Accident statistics for the period 1967 through October 1970. The number of accidents, number of fatalities, and the available accident rates are shown below:

Year	*Rate per 1,000,000* hours *flown*		*Accidents*		*Fatalities*
	Total	Fatal	Total	Fatal	
1967	13.25	1.87	234	33	90
1968	8.80*	2.25	176*	45	109
1969	9.20*	1.30	206*	29	141
1970**	Not available		133**	30**	78**

*Commencing 1/1/68, the definition of substantial damage was changed. Comparisons should not be made with years prior to that date.

**These data are preliminary through October 31, 1970 only.

After reviewing these data and the reports previously referred to, the Board recommends that the Air Taxi industry and the FAA review the actions they took following recommendations submitted by the Board March **14, 1968.** (See Attachment 5.) The Board believes that a review of these recommendations and the subsequent actions taken may lead to the consideration of additional corrective action directed toward reducing the number of accidents and fatalities occurring in this segment of the aviation community.

BY THE NATIONAL TRANSPORTATION SAFETY BOARD:

/s/ JOHN H. REED
Chairman

/s/ OSCAR M. LAUREL
Member

/s/ FRANCIS H. McADAMS
Member

/s/ LOUIS M. THAYER
Member

/s/ ISABEL A. BURGESS
Member

APPENDIX A

INVESTIGATION AND HEARING

1. Investigation

The Safety Board received notification of this accident about 1905, February 10, 1970, from the Federal Aviation Administration's Eastern Region Communication Officer. Investigators from the Safety Board's New **York** and Washington offices proceeded to Trumbull Airport at Groton, Connecticut, where the investigation headquarters was established on February **11,** 1970. Working groups were established for Operations, Air Traffic Control, Weather, Human Factors, Engines and Systems, Strucutres, and Maintenance Records. Parties to the Investigation included Pilgrim Aviation and Airlines, Inc., The Federal Aviation Administration, the Weather Bureau, and De Havilland of Canada Ltd. The on-scene investigation was completed about March **4,** 1970.

2. Hearing

A public hearing was held at the International Hotel on the John F. Kennedy International Airport, Jamaica, New York, on April **22** and **23,** 1970.

3. Preliminary Reports

A preliminary aircraft accident report summarizing the facts disclosed by the investigation was released by the Safety Board on March 31, 1970. A report summarizing the public hearing was issued on May 20, 1970.

Crew Information

Captain Alfred Crofts, aged 44, was employed by Pilgrim Aviation and Airlines Inc., on February 15, 1966, as a VFR (Visual Flight Rules) charter pilot. On June 20, 1967, he completed the De Havilland ground training on the Twin Otter, and on October 30, 1967, was checked out as captain on this aircraft. He held a commercial pilot certificate, No. 1341821, dated May 17, 1967, with airplane single- and multiengine land and instrument ratings. He held a second-class medical certificate, with no limitations, dated October 24, 1969.

According to his log books, Captain Crofts had flown a total of 6,335 hours. He had a total of 2,180 hours in the Twin Otter, of which 256 hours were flown in the last 90 days and about 5.5 in the last 24 hours. Captain Crofts had been off duty from about 0330 February 10, 1970, until about 1545 the same day. He was reported to have slept more than 8 hours during this off-duty period.

Since October 1967, Captain Crofts had passed satisfactorily all of his flight proficiency checks.

First Officer George B. Fox, aged 23, was employed by the company on July 28, 1969. He held a valid commercial pilot certificate, No. 1912864, dated July 13, 1969, with airplane single- and multiengine land and instrument ratings. First Officer Fox held a first-class medical certificate, with no limitations, dated April 24, 1969.

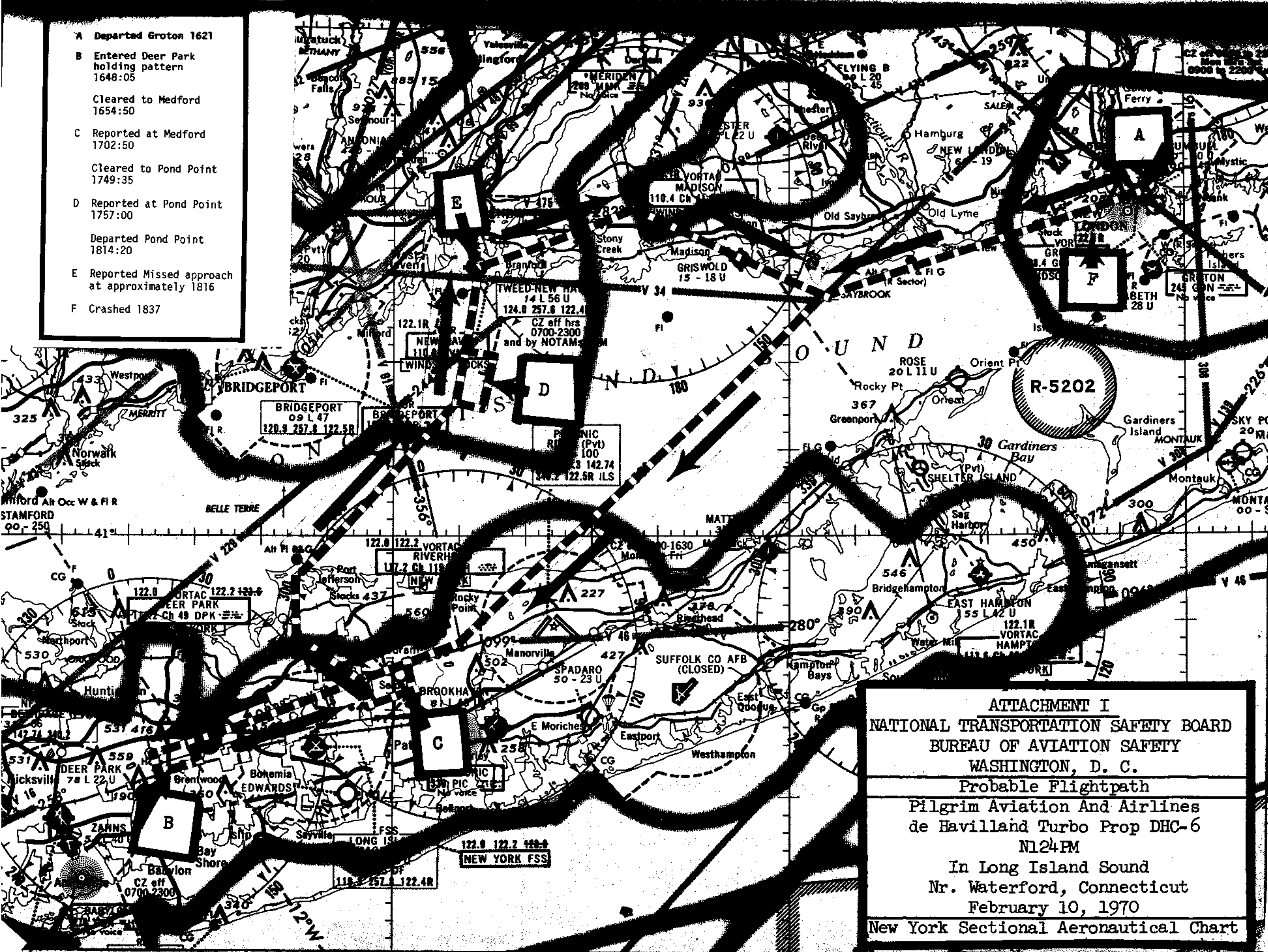
According to his logbook, First Officer Fox had flown a total of 991 hours, of which 669 were in the Twin Otter. He had flown 2:20 hours on the day of the accident prior to Flight 203.

APPENDIX C

Aircraft Information

N124PM was a De Havilland DHC-6, 100 series, turbo prop Twin Otter, manufactured by De Havilland of Canada Ltd., on April 15, 1967. **As** of February 9,1970, it had accumulated a total of 5,817 total hours. The last 100-hour inspection of the aircraft was completed February 9, 1970. Its last postflight inspection was February 8, 1970.

The aircraft was powered by two Pratt Whitney PT 6A-20 engines equipped with Hartzell full-feathering propellers, Hub Model HC-B3TN-3. The left engine had accumulated 4,670 total **hours,** of which 2,858 were since overhaul. The right engine had accumulated 5,260 total hours, of which 3,325 were since overhaul.



A Departed Groton 1621

B Entered Deer Park holding pattern 1648:05

Cleared to Medford 1654:50

C Reported at Medford 1702:50

Cleared to Pond Point 1749:35

D Reported at Pond Point 1757:00

Departed Pond Point 1814:20

E Reported Missed approach at approximately 1816

F Crashed 1837

ATTACHMENT I

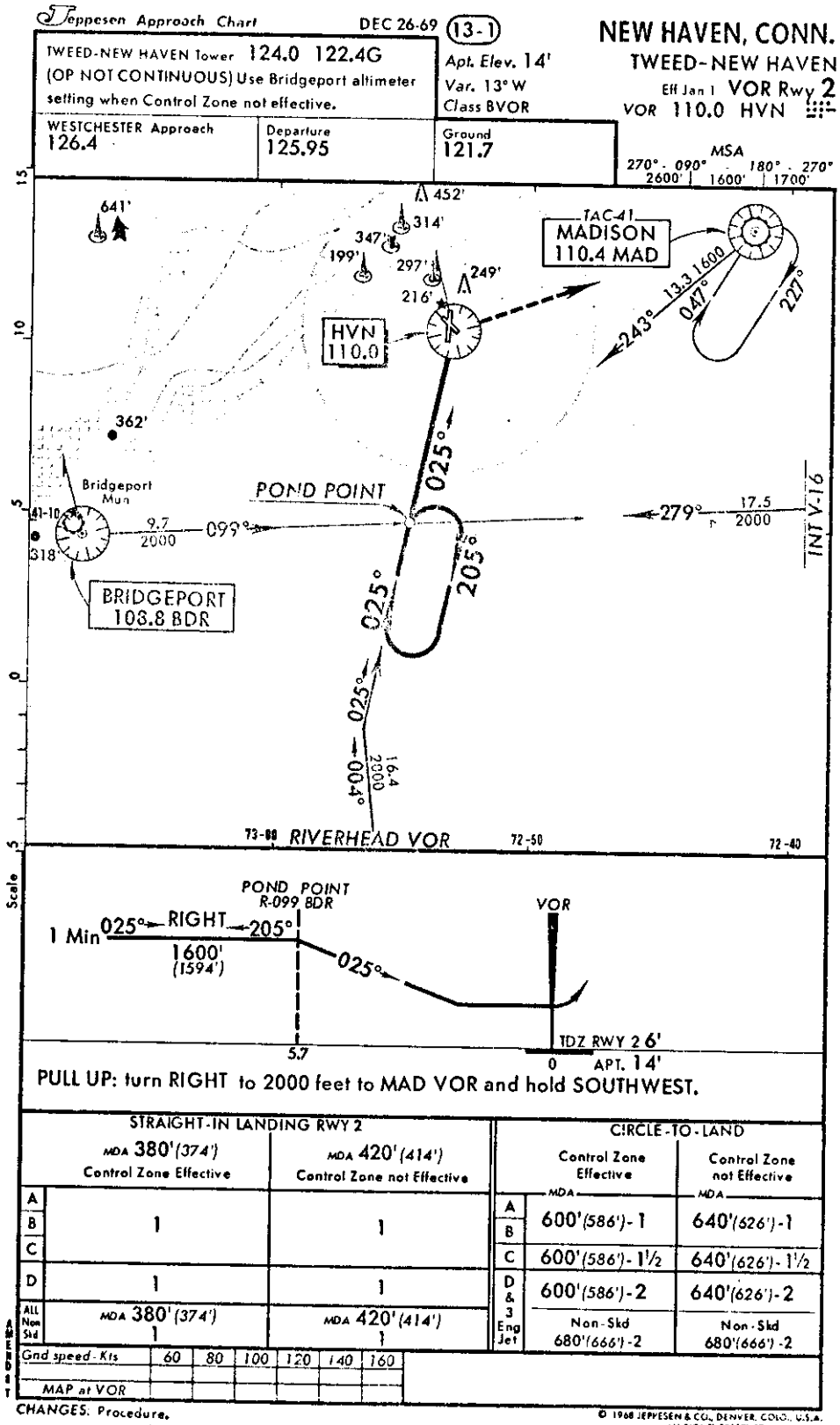
NATIONAL TRANSPORTATION SAFETY BOARD
BUREAU OF AVIATION SAFETY
WASHINGTON, D. C.

Probable Flightpath

Pilgrim Aviation And Airlines
de Havilland Turbo Prop DHC-6
N124PM
In Long Island Sound
Nr. Waterford, Connecticut
February 10, 1970

New York Sectional Aeronautical Chart

ATTACHMENT 2



ATTACHMENT **3**

DEPARTMENT OF TRANSPORTATION
NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C. 20591

OFFICE OF THE CHAIRMAN

COPY

June 10, 1970

Honorable John H. Shaffer
Administrator
Federal Aviation Administration
Washington, D.C. 20590

Dear Mr. Shaffer:

The Board's recently completed analysis of accidents involving Air Taxi Operation, 1964-68, has disclosed an area of concern which we believe merits a closer look into the pilot time in type in passenger operations.

Although there are many accidents involving low pilot experience in the type of aircraft, we are detailing two herein to explain the reason for our concern. On February 15, 1967, a Cessna 182 on an air taxi flight from Youngstown, Ohio, experienced **an** engine failure during the initial takeoff climb. While the pilot was attempting a 180° turn back to the runway, the aircraft stalled and crashed. The aircraft was destroyed, and both occupants, the pilot and his passenger, were fatally injured, The pilot's lack of familiarity with the aircraft was cited as a related factor in the accident. He had only 2 hours of experience in this type of aircraft before this flight.

Two passengers and a pilot were killed and one passenger was seriously injured in an accident at Vidalia, Georgia, on June 1, 1968, when the aircraft, a Cessna 411, experienced an engine failure during the initial takeoff climb. The aircraft was destroyed when it stalled and crashed. The probable causes cited were the powerplant, improper operation of powerplant and powerplant controls, improper emergency procedures, and the failure to maintain flying speed. The Board also noted that improper single-engine procedures were employed. The pilot, who had a Commercial Pilot's Certificate, had 6,850 hours of total time, but had only 10 hours of experience in the Cessna 411.

During the preparation of the analysis of Air Taxi Operations, it became evident that the accident involvement of pilots with very little time in type was quite different from that of pilots with more experience in type.

The data for the 5-year period indicated that in 83.33 percent of the fatal accidents in which the pilots had 25 hours experience or less in type, the pilots caused or contributed to the cause of the accidents: Pilot involvement in nonfatal accidents is also greater for pilots with 25 hours or less in type, in this case 80.52 percent.

Although the Safety Board reviewed your notice of Proposed Rule Making 69-4 and made specific comments on May 1, 1969, no mention was made of the following recommendations. We are mindful of the fact that Amendment 135-12 just became effective on April 1 of this year. We consider, however, that the information obtained, subsequent to our review of NPRM 69-4 is of such significance that it should be brought to your attention.

In view of the foregoing, and as additionally supported by the 5-year study, it is recommended that:

(1) a comprehensive review be made of the Federal Aviation Regulations, Part 135, Subpart D, pertaining to pilot-in-command qualifications with a view toward specifying pilot-in-command time in type requirements; and

(2) the Administrator's staff meet with representatives of our Bureau of Aviation Safety to discuss in depth this Air Taxi Accident Study to determine what additional analyses would prove most fruitful in increasing safety in Air Taxi operations. Particular areas recommended for further study are certain detailed cause/factors, such as inadequate preflight preparation and/or planning or inadequate maintenance and inspection.

The Safety Board has approved the 5-year Air Taxi Study for publication. Copies will be forwarded to you as soon as they are returned from the printers.

Sincerely yours,

/s/ John H. Reed
Chairman

Enclosure

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

ATTACHMENT **4**

WASHINGTON, D.C. 20590

C
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OFFICE OF THEADMINISTRATOR

Honorable John H. Reed
Chairman, National Transportation Safety Board
Department of Transportation
Washington, D.C. 20591

Dear Mr. Chairman:

This replies to your letter of 10 June 1970 which refers to your five-year Air Taxi Study, and in which you make two recommendations.

We will certainly consider the Study when it becomes available to us. Whether or not a comprehensive review of Subpart D of Part 135 of the Federal Aviation Regulations is necessary would seem to us to be a decision to be reached based on our review of your Study along with the results of our extensive changes to Part 135 and related directed actions to our field personnel regarding their implementation. As you note, Amendment 135-12 has only been effective since 1 April 1970, thus we are unable as yet to determine what improvements there may have been in the pilot error accident causal factor.

The Amendment, instead of focusing on experience in type in terms of hours, focuses on initial and recurrent training and testing –

1. In the class of aircraft, if single-engine airplane; or

2. In the type of aircraft, if helicopter, multiengine, or turbojet.

These Same training and testing requirements, however, were imposed on air taxi operators by the issue of operations specifications in late 1968 as an interim measure pending the adoption of Amendment 135-12.

We have examined the fatal air taxi accident record for calendar year 1969 and do not find that aircraft familiarity, namely, time in type, has been a significant factor. During this period, there were 31 fatal accidents. In three cases, pilot flight time was not reported, however, in the other 28, the low time pilot in type had 33 hours, 22 of which had been

acquired in the 90-day period preceding the accident. Many of the pilots involved had extensive experience in the specific aircraft make and model, which supports our contention that flight experience alone does not assure safety.

We welcome your second recommendation that my staff meet with representatives of the Bureau of Aviation Safety to discuss in depth the Air Taxi Accident Study. A date will be suggested to begin meetings after we have had the opportunity to review this material.

Sincerely,

J. H. Shaffer
Administrator

ATTACHMENT 5

DEPARTMENT OF TRANSPORTATION
NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C. 20591

March 14, 1968

OFFICE OF THE CHAIRMAN

COPY

Honorable William F. McKee,
Administrator,
Federal Aviation Administration,
Department of Transportation,
Washington, D.C. 20590.

Dear General McKee:

The Safety Board has become increasingly aware in recent months of the very rapid expansion in the operations of the air-taxi operators, and within that group a similar burst of activity on the part of the scheduled air-taxi operators.

Also of interest to us, and in the same general area, is the rapidly expanding use of such operators by the Post Office Department in the contract carriage of mail.

A description of the nature and present scope of the operations of this group will serve as a background against which the safety of such operations, a matter of real concern to the Safety Board, can be appraised.

There are, as you know, more than 3800 air-taxi operators in the United States. As of October 1, 1967, *scheduled* air-taxi operators totalled 165, an increase of 42% over the 116 reported only eleven months before. Another indication of the rapid rate of growth of this segment of the indusay can be gleaned from the fact chat there were only 12 scheduled air-taxi operators four years *ago,* and that during the same period the number of aircraft utilized by them increased from 72 to 685.

Although this figure may not be entirely precise, it is our information that during the calendar year 1967 scheduled air-taxi operators carried over 3,000,000 passengers.

It is worthy of note that at least two certificated airlines have contracted with scheduled air-taxi operators to operate a segment of the certificated carriers' routes and that there are some 42 interline agreements between certificated airlines and scheduled air-taxi operators for the onward carriage of airline passengers.

In this connection, it is also worthy of note that in the contractual arrangements for the operation of route segments by air-taxi operators there are no affirmative references to the safety of such operations (other than requirements for insurance coverage imposed by

the certificated carrier – and these could hardly be said to contribute to safety). Nor do the interline arrangements evidence concern as to safety by anything other than protection against airline liability through insurance.

The Post Office Department has, within the past year, become a very important contributor to the expansion of this segment of aviation through its contracts for the carriage of mail. Some indication of the rate of growth in this area can be gleaned from the fact that in 1966 the Post Office Department paid air-taxi operators about $180,000 for carrying mail; in 1967 the amount was in the neighborhood of $3,500,000; and in 1968 the Post Office expects the figure to go as high as $8,000,000.

By the end of 1967 there were in the neighborhood of 80 mail routes being operated by some 35 air-taxi operators. The Post Office Department expects to have from 180 to 200 routes in operation by June 1968, presumably with a commensurate increase in the number of air-taxi operators involved.

In contrast to the contractual arrangements between air-taxi operators and air carriers, the Post Office Department has imposed safety requirements in its contracts which go substantially beyond those presently required by the Federal Aviation Administtation under Part 135 of the Federal Air Regulations, and they are intending to make such requirements more stringent almost immediately, since they are far from satisfied with the safety record of their contractors in recent months. (Four aircraft losses between November 25, 1967, and January 28, 1968, with attendant loss of mail and lives.)

By and large, it is our understanding that the contractual safety requirements imposed and to be imposed by the Post Office Department are intended to reach a level of safety in operations at least equal to what may come out of the next proposed modification of Part 135.

Certainly, such contractual requirements are far more stringent than are required of air-taxi operators generally, or of scheduled air-taxi operators in particular, by the existing Federal Air Regulations, and any substantial amendment in the existing Part 135 cannot be looked for (because of Rule Making requirements) for at least six months, and more probably a year.

The Board is well aware that the FAA has been addressing itself to this emerging problem with a high sense of its importance and urgency, and as we both know the Post Office Department has quite recently expressed concern about the safety of their contract operations in a series of meetings with both the FAA and the NTSB.

It is our understanding that the FAA is disposed to cooperate with the Post Office Department not only in advising with them as to the type of contractual safety provisions they might wisely impose, but also to assist in the implementation of the Post Office Department's program by some type of surveillance over the operators to see to it that the contractual obligations imposed upon them in the interest of safety are in fact being complied with. This we applaud.

But this brings us to the proposition that at this point the Post Office Department, with the help of the FAA, is imposing a higher level of safety regulation on air-taxi operators carrying *mail* than the Government imposes on the same, or other, air-taxi operators who are carrying passengers for hire.

Three million passengers carried for hire by ***scheduled*** air-taxi operators in 1967 is not only a respectable number, involving a dollar volume many times that of the $3,500,000 Post Office expenditure during the same year, but of much more significance from the standpoint of our present discussion, has involved a death and injury toll which cannot be viewed with anything approaching equanimity.

Preliminary figures indicate that there were some 84 deaths in air-taxi operations in 1967, of which 61 were passengers and 23 were crew. Figrues for 1966 indicate a passenger fatality in air-taxi operations of 32, about one-half the level of 1967.

The area we are talking about is so new and ***so*** rapidly changing that comparative statistics are not worth much. However, the 1967 toll in absolute numbers is of sufficient magnitude to justify concern and affirmative action.

This rapid growth is being encouraged by the Federal Government, both by expanded authority through the Civil Aeronautics Board and the expanding contract operations of the Post Office Department. Then, too, the contracts between certificated carriers and air-taxi operators, as well as interline agreements between the two, would indicate a growing belief by at least some certificated airlines that the air-taxi operator fulfills a need. All in all, it can safely be assumed that the expansion is desirable and should be both encouraged and helped.

It is of concern to us that this record rate of growth, however desirable it may be, is being accompanied by a preoccupation with economic growth and very little, if any, attention is being paid to the safety obligation imposed by the equally rapid change in the role of this class of carrier. It seems clear that we cannot wait ***six*** months to a year for the evolution of a more modern regulatory scheme through the upgrading of Part 135.

In recent months, as the FAA has observed appreciable laxity in operating techniques of certificated carriers, it has acted promptly and sent teams in to review practices and to force an upgrading of them. We are of the view that the technique could be used in the area under discussion, although admittedly the assignment would be radically different, as will be developed later.

In this connection, it might be observed that air-taxi operators, including scheduled air-taxi operators, are conceived of organizationally within the FAA as being essentially a part of general aviation. This was once true and may still be true for the bulk of air-taxi operators, but it is by no means true for scheduled air-taxi operators or those under contract with the Post office Department. This would suggest that not only should these carriers be classified as air carriers, but should be treated as such both within the structure of FAA and, in the longer pull, from the standpoint of safety requirements.

Another analogy of possible use in FAA consideration of this problem is its Project 85 which, as recently as in September, 1967, was set up on a test basis to encourage accident prevention in general aviation. The essence of this proposal, as we read it, is to upgrade the operations involved not by surveillance but by helping and by teaching It is suggested that if Project 85 were narrowed down so as intially to make its principles specifically (and solely) applicable to scheduled air-taxi operators and air-taxi operators under contract to the Post Office Department, the possibility for success of the venture would be substantially enhanced. Experience with this more limited group could provide valuable information as a prelude to expansion to other general aviation areas later, as resources permit.

It is also suggested that personnel presently assigned as air carrier inspectors (whose job it is, basically, to monitor highly sophisticated and, it can be assumed, highly effective operations related to safety) could effectively be utilized in implementing such a program. Certainly, 165 scheduled air-taxi operators and 35 or more air-taxi operators under contract with the Post Office Department (most of whom are within the 165) would be a manageable number for intensive effort, where 90,000 members of the general aviation fraternity might not be.

Summing all this up, the Board is of the view that concerted and speedy action by both industry and government is required to adequately cope with the situation described. A suggested program follows:

I. By the Industry

A. Organized groups of scheduled air-taxi operators are urged to devote their energies to the safety of their operations to an extent more reasonably related to the amount presently being expended for the enhancement of their economic opportunities. For example, it would not seem either beyond the capabilities of these organizations or adverse to the intelligent self-interest of their members were they to institute programs devised to give expert guidance to operators in setting up operating rules and establishing desirable operating practices in areas involving safety (a large portion of accidents in this field are attributable to deficiencies in operations, i.e., inadequate maintenance, inadequate training, etc.).

B. Scheduled airlines are urged to take affirmative action commensurate with their responsibility for the safety of passengers being carried by scheduled air-taxi operators pursuant to interline agreements or specific contracts for the operation of route segments. Here, if the carriers are unwilling, for whatever reason, to assume affirmative responsibility for safe operations of air-taxi operators with whom they have either interline agreements or specific contracts to operate route segments, serious consideration should be given to having the CAB condition its approval of any such contractual arrangements on the existence of contractual undertakings by each air-taxi operator to comply with a set of safety rules comparable or at least equal to the then contractual arrangements between the Post Office and its air mail carriers.

II. By the Government

A. The Federal Aviation Administration should launch immediately a program addressed to the scheduled air-taxi operators and the operators under contract with the Post Office Department, which would involve not only surveillance of the conventional type, but also the teaching of this group how better to perform a basically common carriage operation, with emphasis **on** associated safety aspects. This program should include sending in FAA teams to review and accomplish the necessary upgrading of their safety practices: and

B. That the FAA place the safety supervision of scheduled air-taxi operators and Post Office contract operators organizationally under FAA staff associated with the handling of air carrier safety operations, and proceed promptly to establish safety programs and standards for them commensurate with their current and long-range status, activities, and importance in aviation.

Admittedly, the programs recommended herein for action by the Federal Aviation Administration, the air carriers, and the air-taxi operators, are beyond the scope of what the Administration and the industry have been either equipped or expected to do, and might not even be favorably received by the group of air-taxi operators such programs would be intended to help.

However, the need is real and immediate and it is our view that the situation will not wait either for "as **usual''** industry practices or for the ordinary regulatory process to catch up to it.

Sincerely,

/s/ Joseph J. O'Connell, Jr.
Chairman

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

ATTACHMENT **6**

WASHINGTON, D.C. 20590

DATE April 3,1968

IN REPLY REFER TO

SUBJECT: Air Taxi Operations

TO Honorable Joseph J. O'Connell, Jr.
Chairman, National Transportation Safety Board

The agency has been increasingly concerned with the problems associated with the rapid growth of air taxi operations and I can appreciate and understand the concern expressed in your letter to me of March **14,** 1968.

Publication of the agency's statistics on scheduled air taxi operations as of October 1967, together with the advent of air taxi airmail operations, have served to focus attention on the growth of the air taxi industry in recent months.

While it is quite true that we have provided assistance and guidance to Post Office officials at their request, the safety standards we suggested to them were generally derived from requirements already imposed on many of the larger and more active air taxi operators through operations specifications. Similar, and more stringent operations specifications, which include appropriate sections of Federal Aviation Regulations, Part 121, have been applied to air taxi operators who operate segments of certificated air carriers' routes. It is our opinion that these air taxi operators have affumative references to safety practices through their operations specifications despite the lack of specific references in their contractual agreements with carriers.

In recent years, we have sent special teams to review operating practices of air taxi operators when there was reason to believe that their operations were substandard. The procedures followed by these teams closely parallel those used when conducting special inspections on certificated air carriers holding Civil Aeronautics Board authority. Additionally, at least one region is applying the Systemsworthiness Analysis Program (SWAP) to some of the larger air taxi operators on a test basis. If this proves practical, we will institute it on a national basis.

I have noted your suggestion that we consider the use of personnel assigned to our Project 85. This is a test program implemented in two regions with a limited number of personnel. We do not feel it would be wise to divert the personnel in this program.

Your suggestion that we use air carrier inspectors to conduct surveillance of scheduled air taxi operators is one that we have considered in the past. As a matter of fact, our field air carrier people have participated in developing standards and requirements for the operations specifications of air taxi operators. Additionally, we have considered transferring the responsibility for policy guidance of air taxi operations from our General Aviation Operations

Branch in Flight Standards Service to the Air Carrier Operations Branch. The reason we have not done this is primarily because of personnel shortages and ceiling limitations under which we currently are operating This is not to say that our Air Carrier operations Branch does not involve itself with problems relating to air taxi operations. It does, as the need arises.

With regard to your suggested industry programs, I believe we may be considerably further down the road than many people realize. For example, the National Air Taxi Conference (NATC), with the encouragement and participation of FAA, held an Air Taxi Seminar last November in West Palm Beach. Approximately one hundred persons, some from as far away as Massachusetts and California attended the one-day session which covered management practices, operating methods, regulations and related subjects. Three more seminars sponsored by NATC are scheduled for this spring and early summer.

Also, it's worth noting that individual air carriers have made space available in their own training and management programs for air taxi operators. A number of major air carriers have participated in the programs presented at the NATC annual conventions. Recently we discussed with the Air Transport Association the possibility of participating in an industry program similar to that which you suggest. Their initial response was favorable and, in light of your suggestion, we will be pursuing it further.

Insofar as government action is concerned, we are well along with a program addressed to the scheduled air taxi operators, including not only those who carry mail, but also those who hold interline agreements or conduct regular or frequent "on demand" operations. In February of this year we asked our regions to place special emphasis on the surveillance of air taxi operators falling in any of these categories. As I mentioned earlier, many of our field offices already have issued operations specifications based on the local or regional operating conditions and environments. These operations specifications include such items as prescribed training programs, pilot-in-command requirements, proficiency checks and flight time limitations equal to or more restrictive than those imposed by the Post Office.

We agree that effort should be made to advise and counsel these operators in how better to perform common carriage operations, with emphasis on safety. Regrettably, our manpower situation does not permit us to devote as much effort to such a program as we would like. However, we shall continue working with ACA, NATC and other groups at seminars, annual conventions and wherever else we believe we can help them to help themselves make their operations safer.

We agree that the safety supervision of air taxi operators who engage primarily in air transportation (as opposed to those who hold an air taxi certificate as an adjunct to another primary aviation interest such as a flying school or fixed-base operation) should be air carrier oriented. Unfortunately, most air taxi operations are not located in the immediate vicinity of our air carrier offices. AS a matter of fact, many of them are located a considerable distance from the nearest general aviation district office. However, for our own field people, we intend to provide policy guidance and inspector training which is air carrier oriented.

As recognized in your comments and recommendations, we are proceeding with regulatory action to upgrade the air taxi rules, Part **135.** Our analysis of the industry comments on our Advance Notice of Proposed Rule Making of March 17,1967, has been completed and a Notice of Proposed Rule Making is in final stages of development. We shall take every possible action to accelerate this rulemaking process.

Let me say again that I can understand your concern and I share the sense of urgency which you expressed. However, I am hopeful that the summary of actions already taken, as well as those underway by both industry and government, will serve to reassure you that positive and responsive steps are being taken. I can **assure** you that we are not overlooking the problems you have described.

'Should you wish further information on any or **all** of our programs concerning air taxi operations, members of my staff will be pleased to meet with you or your people at any time convenient to you.

/s/ WILLIAM F. McKEE

GPO 906-757