

CIVIL AERONAUTICS BOARD

ACCIDENT INVESTIGATION REPORT

Adopted: July 29, 1955

Released: August 3, 1955

PLYMOUTH OIL COMPANY, INC., LOCKHEED PV-1, N 1505V
NEAR WAYNESBORO, VIRGINIA, NOVEMBER 20, 1954

The Accident

At approximately 1740,^{1/} November 20, 1954, a Lockheed PV-1 aircraft, owned and operated by the Plymouth Oil Company, Inc., Pittsburgh, Pennsylvania, crashed on Galf Pasture Mountain, near Waynesboro, Virginia. All five occupants, including the two crew members, were killed. The aircraft was demolished by impact and fire.

History of the Flight

N 1505V departed Sinton, Texas, at 0845, November 20, 1954, on a VFR (Visual Flight Rules) non-stop flight to Baltimore, Maryland, with Pilot Arthur Milton Soper, Copilot Joseph R. Kolodzie, and three passengers, all company executives. No flight plan was filed with CAA. Prior to departure, the pilot telephoned the forecaster at the nearest U. S. Weather Bureau Station, Corpus Christi, Texas, and was briefed on en route weather conditions. He was advised that the weather should remain suitable for VFR flight as far as Atlanta but beyond that point ceilings would probably lower. Pilot Soper said that if these conditions existed when he was near Atlanta he would land and refuel. A routine flight was made to Atlanta and the aircraft landed at 1313. The aircraft was on the ground approximately 2 hours and 25 minutes because ARTC (Air Route Traffic Control) could not clear the flight sooner due to traffic delays in the Washington area. During this period the pilot was briefed on en route weather and the aircraft was refueled with 208 gallons of 100 octane fuel.

The aircraft departed Atlanta at 1535 for Baltimore on an IFR (Instrument Flight Rules) clearance. The clearance specified a cruising altitude of 11,000 feet over airways Green 6 and Red 77 to Lynchburg, Virginia, Red 37 to Gordonsville, Virginia, and Red 33 and Red 17 to Baltimore.^{2/} At 1628, when in the vicinity of Spartanburg, South Carolina, the flight requested a change in altitude to at least 1,000 feet on top of clouds because icing conditions were being encountered. This necessitated a climb of approximately 5,000 feet which was immediately approved by ARTC.

^{1/} All times herein are eastern standard and are based on the 24-hour clock.

^{2/} See Attachment A.

At 1708, Greensboro, North Carolina, radio received the following position report: "N 1505V on instrument flight rules, 6 minutes northeast of Greensboro range at 08 on top at 16,000 feet, request lower altitude, estimating Lynchburg at 22." Accordingly the aircraft was cleared to descend to and maintain 11,000 feet. At 1724 Lynchburg radio received a position report from N 1505V, "Over Lynchburg at 1722, at 11,000 feet, estimating Gordonsville at 38." The Lynchburg altimeter setting, 29.50 was given the flight and the flight's position report was relayed to Washington ARTC. A few minutes later the following clearance was relayed to the flight, "ARTC clears N 1505V to cross Remington at 11,000, cross Arcola range station at 10,000, maintain 10,000."

The 1628 Baltimore and Washington weather was then given as: Baltimore, scattered clouds 1,000 feet, estimated ceiling 7,000 feet, overcast; visibility 3 miles; light rain and haze; temperature 61; dewpoint 61. Washington, ceiling measured 8,500 feet, overcast; visibility 10 miles; light rain; temperature 60; dewpoint 57; wind east-northeast 16; pressure falling rapidly. The flight acknowledged this message at 1727 and cancelled its IFR flight plan. This was the last radio contact with the aircraft. Approximately 13 minutes later it crashed on the mountainside and burned.

Investigation

The accident occurred in a downward-sloping open field adjacent to the Skyline Drive and 6 miles north of its junction with U. S. Highway 250. Heading of the aircraft at first impact was 91 degrees magnetic and the altitude above sea level was approximately 2,100 feet. The right wing struck a fence post while the aircraft was making a shallow right turn; the impact severed the wing tip. The aircraft then struck the ground with terrific force, 75 feet beyond the post. In sequence the right wing struck the ground followed by the right propeller and engine, the nose of the aircraft, and the left propeller and engine. The aircraft then bounced into the air and shed parts along a path for 1,300 feet at which point the main portion of the wreckage came to rest and burned. Parts of the aircraft were found 1,940 feet from the point of first ground impact. Examination of the airframe disclosed no evidence of structural failure prior to impact.

Impact forces tore both engines from the aircraft and they were found among the most forward components along the wreckage path. The propellers were also found at widely separated points. Engines and propellers were badly damaged. No evidence of failure or malfunctioning of the engines prior to impact was found. It was determined that at the time of impact both propellers were operating within the cruise range. Both propellers were equipped with deicer fluid distributors.

The radio equipment of the aircraft consisted of ADF, VOR, and VHF. This equipment sustained extensive damage in the ground impact and fire with the result that little information of value could be learned from an examination of the individual units. The most recent check of the radio equipment was on October 27, 1954, at which time operation was satisfactory. All radio contacts were normal throughout the flight and there was no indication of any radio equipment malfunctioning. The aircraft received no service during the Atlanta stop other than refueling.

Investigation indicated that the aircraft descended from 11,000 feet at Lynchburg to the northwest of Red 37 airway. This airway's course from Lynchburg to Gordonsville is 54 degrees and is over lower terrain that was free of fog at the time of the accident. The aircraft was first seen flying a north-northeast heading at about 2,500 feet m. s. l. in the Blue Ridge Mountain area, 16 miles south of the accident site. The mountain tops were covered with fog and there was a layer of fog over the valley to the west. Eyewitnesses, near Skyline Drive, testified that they saw the aircraft flying at a very low altitude just below this fog layer.

A floodlighted marble edifice (a tourist attraction known as Swannanoa) is located 1/4 mile south of the junction of the Skyline Drive and U. S. 250, on top of a mountain 2,400 feet above sea level. A caretaker, standing outside this building, saw the aircraft heading northeast nearly hit one of the building's 60-foot high towers as it passed over. It was apparently flying with power reduced. N 1505V, its flashing lights on, then circled to the left and passed over Swannanoa again in a northerly direction. This time it just missed an 85-foot high statue situated on the building grounds. The caretaker, formerly an Air Force mechanic, said both engines were developing power as the aircraft turned left toward the Shenandoah Valley. A witness in the valley northeast of Waynesboro had several glimpses of landing lights in breaks in the fog about 600 feet (2,000 m. s. l.) above the ground. In the general area there were fog covered peaks ranging in altitude from 2,500 to 4,000 feet m. s. l. Another witness, 2-1/2 miles southwest of the accident scene, heard the aircraft at what seemed a very low altitude heading northeast toward the ridge with its engines sounding normal.

On November 20, 1954, a cold front extended southward from Lake Ontario to the South Carolina Coast. One of several frontal waves was located in North Carolina and moved northward along the front into southern Virginia during the afternoon. This wave had a direct influence on the weather encountered by the flight from Atlanta and at the time of the accident it had moved into central Virginia with accompanying thunderstorm activity and moderate showers. Terminal forecasts used by the pilot at Atlanta indicated 2,500-foot ceilings and 7 miles visibility at the time the flight would be due to arrive in the Washington-Baltimore area. Ceilings 7,000 to 9,000 feet maintained in that area during the period. West of Red 77 and 37 airways the tops of the mountains were obscured by clouds, showers, and fog. On the morning of November 20 Pilot Soper told the U. S. Weather Bureau meteorologist at Corpus Christi, Texas, while receiving weather information by phone, that he intended to descend before reaching Washington and proceed VFR to his destination.

Pilot Soper was employed as a pilot by the Plymouth Oil Company in 1945, and until the summer of 1953 the company aircraft in use were of a lighter and smaller type than the one involved in this accident. The company purchased the PV-1 at the suggestion of Mr. Soper and its modification was completed at San Antonio, Texas, in June 1953. On July 10, 1953, at San Angelo, Texas, he obtained a rating on PV-1 aircraft and this rating was effective at the time of the accident.

Analysis

The heading of Red airway 37 between Lynchburg and Gordonsville is 54 degrees magnetic. This airway passes over low rolling terrain and at the time of the accident the cloud ceilings were 6,000-7,000 feet. Although this airway was specified in the flight's clearance it is apparent that this course was not flown after passing Lynchburg but rather that the aircraft continued to fly on about the same heading which was flown between Greensboro and Lynchburg. A continuation of this heading passes over the accident site.

There is also the possibility that after passing Lynchburg the pilot used the Montebello Omni range as a means of navigation. If this was done it might account for the aircraft being where it was when the accident occurred. The Montebello range station is 25 miles southwest of the accident scene and is nearly on a continuation of the course flown between Greensboro and Lynchburg. A 53-degree magnetic radial of the Montebello Omni range is Victor airway 140 and it is on course between Montebello and Baltimore. This airway also passes over the scene of the accident.

The area of the Montebello Omni station, Skyline Drive, and the nearby Blue Ridge Mountains would have required instrument flight on November 20 due to fog and clouds covering the mountain tops. Because of this condition the flight should have maintained an altitude of at least 5,000 feet m. s. l. for safe terrain clearance. Had the flight remained on the course north of Lynchburg, which was specified in its clearance, the ground could have probably been seen between breaks in the clouds and a descent in this direction would have resulted in the aircraft being clear of all clouds at an altitude of about 6,000 feet.

It is believed that the pilot was not certain of his exact location because he descended to a dangerously low altitude in a mountainous area. This belief is supported by the pilot's circling of the floodlighted building in a probable attempt to identify his location. Winds at the flight's altitude over Lynchburg were from 220 degrees at 30 knots and at lower altitudes in the accident area were from 320 degrees at 15-20 knots. From the wind direction given it is apparent that the flight could not have been blown off course into the accident area.

The last radio contact canceling the IFR clearance ended at 1727. From this time until the accident occurred there was 13 minutes of radio silence. It is not known if the aircraft radio equipment failed during this time. However, this appears unlikely since there were on board several radio receivers covering different navigational aids. This is supported by two facts: (1) All previous radio contacts were made in a normal manner; (2) The pilot may have become aware of his position in the last minutes of the flight since when the accident occurred the aircraft was heading directly toward the Gordonsville radio range station and the originally approved course.

Regardless of the pilot's reasons for making the various turns it is difficult to find a logical or reasonable explanation why he proceeded into instrument conditions and let down to such a low altitude over mountainous terrain.

Findings

On the basis of all available evidence the Board finds that:

1. The flight crew and aircraft were currently certificated.
2. According to company records the aircraft was under its allowable gross weight and the load was distributed so that the center of gravity of the aircraft was within approved limits.
3. There was no evidence indicating power or structural failure, malfunction of controls or communication and navigation equipment prior to impact.
4. Had the flight continued on airways on an IFR flight plan at 11,000 feet to Gordonsville and then descended it would have established visual flight conditions and have been over low terrain.
5. The flight made a descent under instrument conditions to a low altitude after canceling the IFR clearance near Lynchburg.

Probable Cause

The Board determines that the probable cause of this accident was the pilot's failure to follow his original and approved course, and the letdown over mountainous terrain which resulted in the aircraft entering a cloud deck and striking the mountain during an attempt to regain a proper course.

BY THE CIVIL AERONAUTICS BOARD:

/s/ JOSEPH P. ADAMS

/s/ JOSH LEE

/s/ CHAN GURNEY

/s/ HARMAR D. DENNY

Ross Rizley, Chairman, did not participate in the adoption of this report.

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

Investigation and Hearing

The Civil Aeronautics Board was notified of this accident about 1900, November 20, 1954. An investigation was immediately initiated in accordance with the provisions of Section 702 (a) (2) of the Civil Aeronautics Act of 1938, as amended. In connection with the investigation depositions were taken at Waynesboro and Lynchburg, Virginia; San Antonio and Corpus Christi, Texas. A public hearing was ordered by the Board and held in Pittsburgh, Pennsylvania, January 19, 1955.

Operator

Plymouth Oil Company is incorporated under the laws of the State of Delaware. Its principal offices are located at 223 Fourth Avenue, Pittsburgh, Pennsylvania. The company has field offices in Texas, Montana, Colorado, Louisiana, and Mississippi, and is engaged in producing and selling petroleum, natural gas, etc. It owns several aircraft which are used in the conduct of its business.

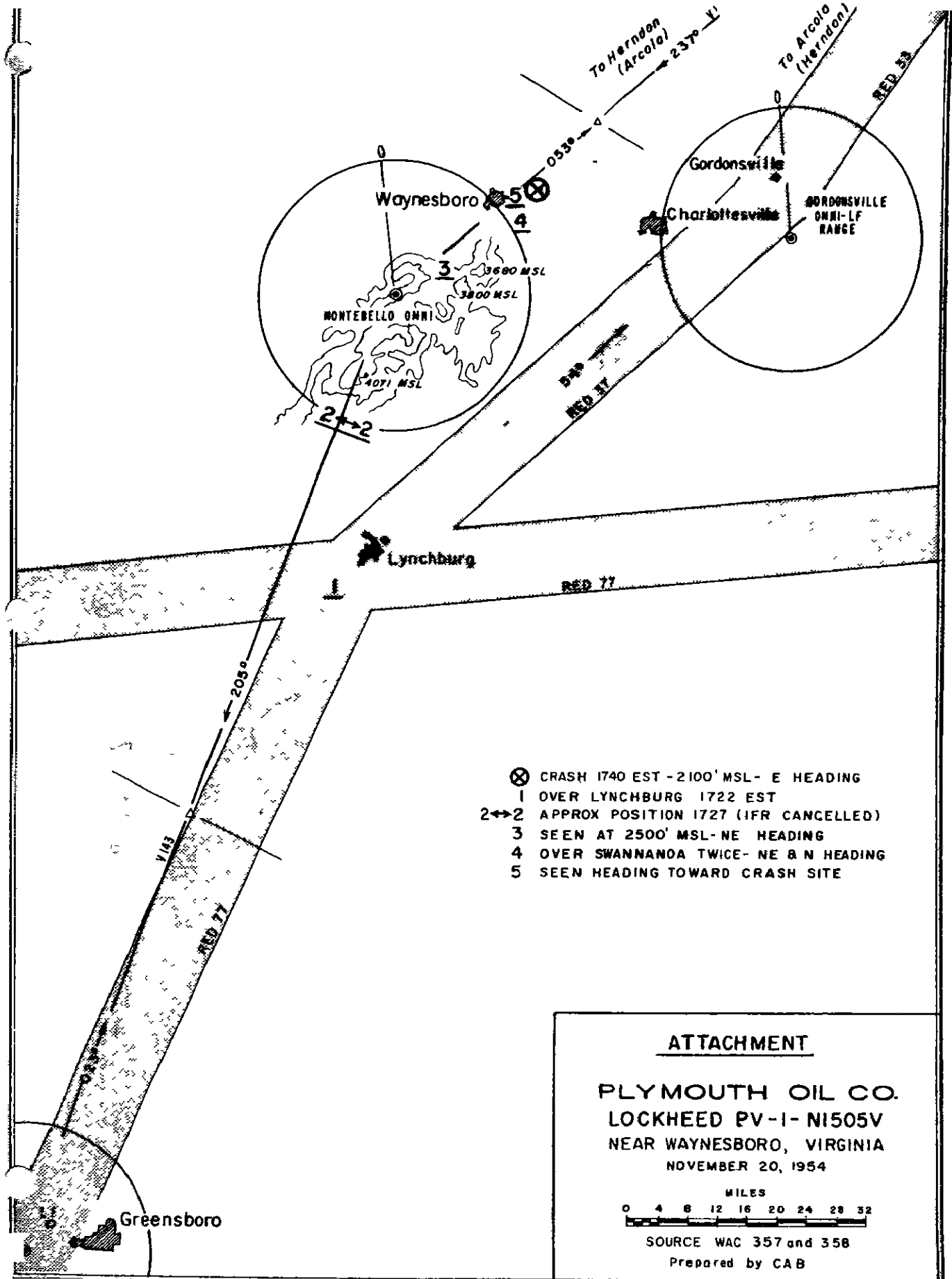
Flight Personnel

Arthur Milton Soper, Jr., age 54, had been employed by the company since December 16, 1945. He held a currently effective airman certificate with commercial pilot, single- and multi-engine land, Lockheed PV-1, flight instructor, and instrument ratings. He had approximately 7,953 flying hours of which 829 were in Lockheed PV-1 aircraft. His last CAA physical was taken August 16, 1954, and his medical certificate had the following limitation: "Holder shall wear correcting lenses while exercising the privileges of his airman certificate."

Joseph R. Kolodzie, age 28, was employed by the company November 10, 1953. He held a currently effective airman certificate with a single-engine land rating. From available records it was determined that he had a total of 300-400 flying hours of which approximately 200 were in Lockheed PV-1 aircraft.

The Aircraft

N 1505V, a Lockheed PV-1, was owned and operated by Plymouth Oil Company and was currently certificated by the Civil Aeronautics Administration. It had an approximate total flying time of 787 hours. It was equipped with two Pratt & Whitney model R2800-31 engines and Hamilton Standard model 23E50-473 propellers.



- ⊗ CRASH 1740 EST - 2100' MSL - E HEADING
- 1 OVER LYNCHBURG 1722 EST
- 2↔2 APPROX POSITION 1727 (IFR CANCELLED)
- 3 SEEN AT 2500' MSL - NE HEADING
- 4 OVER SWANNANOA TWICE - NE & N HEADING
- 5 SEEN HEADING TOWARD CRASH SITE

ATTACHMENT

PLYMOUTH OIL CO.
LOCKHEED PV-1- N1505V
 NEAR WAYNESBORO, VIRGINIA
 NOVEMBER 20, 1954

MILES
 0 4 8 12 16 20 24 28 32

SOURCE WAC 357 and 358
 Prepared by CAB

CIVIL AERONAUTICS BOARD
Washington

December 3, 1954

TO: Messrs. Gurney, Denny, Ryan, Lee, Adams,
The Executive Director

FROM: Director, Bureau of Safety Investigation

SUBJECT: Aircraft Accident near Waynesboro,
Virginia, November 20, 1954, Lockheed
PV-1, N 1505V

Lockheed PV-1, N 1505V, owned and operated by Plymouth Oil Company of Sinton, Texas, crashed on the side of Calf Mountain adjacent to Skyline Drive, 9 miles north of Waynesboro, Virginia, November 20, 1954. Pilot Arthur M. Soper and the four passengers were all killed; the aircraft was demolished.

The flight had departed Atlanta, Georgia, at 1535E, IFR, for Baltimore, Maryland. At 1727E the pilot cancelled his instrument flight plan and advised that he was proceeding VFR. The last radio contact was five minutes later when he reported over Lynchburg, estimating Gordonsville at 1738E.

The aircraft was longitudinally level and in a right turn when it struck the mountain; indications are that the propellers were turning under power at impact. There was very dense fog in the area at the time.

Investigator William A. Butters, of the Board's New York office, is investigating the crash, assisted by Richard C. Hughes and A. B. Hallman of the Washington office.

W. K. Andrews

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