File No. 2-0062

CIVIL AERONAUTICS BOARD

ACCIDENT INVESTIGATION REPORT

Adopted: March 13, 1958 **Released:** March 19, 1958

STANDARD OIL COMPANY OF OHIO, INC., LOCKHEED LODESTAR N 80G,
NEAR UNIONTOWN, PENNSYLVANIA, OCTOBER 6, 1957

The Accident

At approximately 1655,[1/] October 6, 1957, a Lockheed Lodestar, N 80G, owned and operated by the Standard Oil Company of Ohio, Inc., crashed into the side of a mountain near Uniontown, Pennsylvania. The six occupants were killed and the aircraft was demolished.

History of the Flight

N 80G departed Cleveland, Ohio, at approximately 1208, October 6, 1957, for Ingals Airport, Hot Springs, Virginia. The crew consisted of Captain Warren F. Noonan and Copilot Theodore O. Krauss. The purpose of the flight was to pick up passengers at Hot Springs, then fly to Johnstown, Pennsylvania, for an additional passenger, and return to Cleveland. The flight landed at Ingals Airport sometime between 1300 and 1400 without incident. No records of aircraft arrival times are kept at this airport.

N 80G departed Hot Springs at approximately 1545 with four passengers on board. The aircraft was observed to take off on the northeast runway and to climb to an altitude below the clouds. It was then observed to fly in a northwesterly direction for approximately four or five miles. About 1650, over an hour after takeoff and just before the aircraft struck the mountain, it was heard by a number of persons who lived within a radius of 10 miles of the accident scene; none saw it.

Investigation

The site of the accident was a heavily wooded mountainside 4-1/2 miles east-southeast of Uniontown, Pennsylvania (approximately 50 miles southwest of Johnstown). The elevation of the accident site was 2,338 feet, 162 feet below the top of a 2,500-foot mountain. Investigation revealed that the aircraft struck the east side of a 20-degree mountainslope on a heading of 65 degrees magnetic while flying nearly parallel to the mountain ridge. The aircraft, in level attitude, first struck the top of a small tree approximately 35 feet above the ground, and then cut a swath approximately 510 feet long and 80 feet wide through the trees. It was literally broken into many large and small pieces. All components of the aircraft were accounted for within the wreckage area with the exception of the

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1/ All times herein are eastern standard based on the 24-hour clock; altitudes are mean sea level.

right engine which was found approximately 100 feet down the hill. Fire, which followed impact, destroyed the cabin and the cockpit. The aircraft was equipped with full instrumentation for instrument flight but the instruments were damaged beyond readability.

Slash marks, made by both propellers, were easily discernible for a distance of 190 feet from the beginning of the swath. Throughout this distance the rotating propellers cut many trees and limbs of trees, some of which were as much as eight inches in diameter.

Evidence of the force with which the aircraft struck the trees was found within the wreckage area and was manifested by a valve from the top of a CO_2 bottle which was imbedded three inches in an oak tree at a height of approximately five feet above the ground, and a turnbuckle which was imbedded 2-1/2 inches in a tree at a height of approximately 10 feet above the ground.

The left engine was found in the wreckage area approximately 250 feet from the point of initial impact; the right engine, as previously stated, was found farther down the hill. Both engines had suffered considerable impact damage but examination revealed no evidence that either had malfunctioned or failed prior to impact.

One blade of the right propeller, which had broken off from its hub, was found 275 feet from the point of impact. The hub, with the remaining two blades attached, was found 55 feet farther on. All blades were twisted and bent. The left propeller hub, with three blades attached, was found approximately 420 feet from the point of impact. The blades were severely twisted and bent. The dome positions of both propellers corresponded to blade angles of approximately 30 degrees. This blade angle, which is 9 degrees above the low pitch stop setting, indicates that both engines were developing power at impact.

It was determined that fire did not occur while the aircraft was in flight.

At 0700 the day of the accident a small but deepening low pressure center was located off the Virginia coast. By 1300 it had moved northward to the area of Patuxent, Maryland, and by 1900 it was centered in northwestern Maryland. This low, between 1300 and 1900, influenced the weather along a route from Hot Springs to Morgantown, West Virginia, and Johnstown. Along this route and to the east of it were lowering ceilings, rain, and fog. Strong winds, from the general direction of northeast, were present at altitudes of 3,000 feet and above. To the west of this course weather was somewhat better. Witnesses said that in the vicinity of Uniontown it started raining at approximately 1000 and heavy showers continued intermittently throughout the day. Near the scene of the accident fog developed in the afternoon and low clouds shrouded the tops of the mountains.

Many witnesses were contacted who heard but did not see the aircraft. The one furthermost from the scene of the accident was located at Smithfield, Pennsylvania, a distance of about 10 miles southwest. All witnesses were in accord that the aircraft was flying low, so low in fact that some said that as it passed over their houses the windows and furniture shook. All agreed that the engines of the aircraft sounded as if they were operating in a normal manner and that the aircraft seemed to be flying toward the northeast. They reported the visibility to be very poor owing to fog and rain. Several persons who went to the scene

shortly after the accident stated that the fog became much thicker as they approached the wreckage, making road traffic hazardous.

The airport at Hot Springs is located on the top of a mountain at an elevation of 3,780 feet. It was built to furnish a landing area for aircraft of guests of the Homestead Hotel at Hot Springs. The airport manager said that on October 6 the pilots of N 80G ate their lunch in the airplane. Investigation revealed that this consisted of box lunches purchased in Cleveland. Personnel of the company from whom the lunches were purchased said that none of the recipients of lunches furnished that day had reported any ill effects.

No fuel or other services were furnished N 80G during the time it was at Hot Springs. The airport manager said also that Captain Noonan did mention the fact that he had not landed at that airport since 1947. During the time the crew waited for their passengers they lolled about the waiting room and read magazines. The manager said he was away from the office for a period of approximately 15 or 20 minutes while servicing another aircraft; however, during the time he was in the office and for a full half-hour before the aircraft departed, he did not hear either of the pilots call any CAA communications station to check the weather or file a flight plan. He did, however, hear Captain Noonan make a long-distance telephone call, using a company credit card, to the residence of the passenger to be picked up at Johnstown. This call, according to telephone company records, was made at 1525. This telephone conversation lasted several minutes after which the manager said that Captain Noonan immediately went to his aircraft and prepared to depart. The manager said further that at the time of the aircraft's departure the cloud ceiling was 700 to 800 feet broken to overcast above the airport; he was unable to observe any evidence of a higher cloud layer through the breaks in the clouds. The visibility was 5 to 15 miles; the temperature 45 degrees F.; wind west, variable west to northwest, 12 miles per hour. To the north it was very dark and weather in that direction appeared to be worsening because of lowering ceiling and rain showers.

Although the actual gross takeoff weight of the aircraft at Hot Springs is not known, evidence was available from which a reasonable approximation could be computed. This evidence indicates that the aircraft then weighed about 1,000 pounds under the allowable gross takeoff weight.

At approximately 1500, 45 minutes before Captain Noonan took off from Hot Springs, another Lockheed aircraft owned by Westinghouse Electric, Inc., departed the Greenbrier, West Virginia, Airport for Pittsburgh, Pennsylvania. The Greenbrier Airport is only a few miles from the Hot Springs Airport. The pilot of this aircraft stated that he was able to climb to 9,000 feet VFR, and that 25 miles south of Elkins, West Virginia, he filed an IFR flight plan by calling Elkins radio. He said that when entering instrument weather near Elkins moderate snow was encountered; north of Elkins there was heavy sleet or hail. The freezing level was 9,000 feet. His aircraft was cleared to descend to 7,000 feet between Elkins and Morgantown and to 5,000 feet north of Morgantown. This pilot also said that north of Morgantown there was moderate rain and instrument weather and that severe carburetor icing conditions were present almost all the way.

The U. S. Weather Bureau at the Cleveland Airport was contacted to determine if either of the pilots of N 80G had been briefed by Weather Bureau personnel concerning the en route and forecast weather for this flight. No record of these

weather briefings is kept; however, one of the forecasters on duty that morning said that he did remember briefing a pilot who was flying to Hot Springs.

Weather Bureau area forecasts issued by Cleveland and Washington pertinent to the routes presumed to be flown by Captain Noonan indicated that below VFR conditions were expected throughout portions of the return flight.

The Weather Bureau area forecast issued at Cleveland for the period 0800 to 2000 for western Pennsylvania and western New York indicated: Generally ceiling 5,000 to 7,000 broken, locally overcast, tops 8,000 and higher broken above; gradually lowering with rain beginning in southeast portion western Pennsylvania and spreading westward over most of western Pennsylvania and western portion New York by 1600 as low moves northward along Atlantic Coast. Conditions lowering rain area to ceilings 1,500 to 2,500 overcast; 3 to 6 miles visibility; light rain; except occasional ceilings 800 broken; 2 miles visibility; and light rain and fog higher terrain after 1400.

The Weather Bureau area forecast for the period 0800 to 2000 for western Virginia and West Virginia indicated: Low just southeast of Norfolk, Virginia, at 0800 will move north or northwest 15 to 20 knots. Over northeast Pennsylvania, southeast Virginia, and western Maryland, ceilings variable 500 to 1,000, overcast; visibility 1 to 2 miles; rain showers, occasionally heavy rain; with gusty surface winds nearly 40 to 60 knots over most coastal areas. Low ceilings and gusty winds will move northward with low. Cloud layers in precipitation areas to over 20,000. Elsewhere outside of precipitation areas over western Virginia, and western Maryland, patchy stratus clouds 2,000 to 3,000 broken, variable to overcast, tops 4,000 to 5,000 above ground becoming 3,000 to 4,000 scattered above ground in afternoon.

The Weather Bureau terminal forecast for Morgantown, issued at 1200, indicated 1,000 scattered, 2,500 overcast; visibility 5 miles; haze and smoke; lowering by 1900 to 800 broken with 2,000 overcast; visibility 3 miles; haze and smoke; with occasional rain showers. This terminal forecast was available to the pilots prior to their departure from Cleveland. An amendment to the Morgantown weather forecast was issued at 1415 and it indicated 500 scattered, 1,000 broken, 2,000 overcast; visibility 3 miles; light rain and fog; wind northeast 12 knots; variable to 500 overcast; visibility 1 mile; rain and fog. This amended forecast would have been available to the pilots when at Hot Springs if a telephone call had been made to Roanoke, Elkins, or any other nearby CAA station.

The ceiling at Pittsburgh as reported for 1300 to 1800 remained 3,300 and 4,000 feet, with visibility 7 miles, and light rain throughout this period. However, during this same period the ceiling at Johnstown lowered from 1,000 broken at 1600, to a balloon ceiling report of 500 broken, 700 overcast, at 1700, and an aircraft ceiling of 400 broken and 600 overcast at 1800.

The pilots of N 80G did not file a flight plan with the CAA before departing Cleveland nor was a flight plan filed with the CAA by telephone while at Hot Springs or at any time throughout the flight. There is no record of any radio contact between N 80G and any CAA communications stations during this flight.

Captain Noonan flew for this company for several years as copilot and relief pilot. His employment record indicates that he left the company in October 1950 to fly for another company as captain of its Lockheed Lodestar, and was re-employed by SOHIO as captain in June 1957. Captain Noonan was 40 years of age and

had approximately 10,000 flying hours, of which 3,000 or more were on Lockheed-type aircraft. He had an excellent reputation and was considered an above average instrument pilot, having taught instrument flying in the Cleveland area for a number of years.

The chief pilot for the company said that Noonan had flown with him for several years as copilot, during which time he had demonstrated many times his ability as an instrument pilot. He also said that the company employed two pilots who were based at Cleveland and several pilots who were based at Tulsa, Oklahoma. No formal training was given the pilots by the company. The pilots received flight checks from time to time, given by the chief pilot, at which time the individual receiving the check was carefully graded. These checks were comprehensive and included simulated instrument approaches and single-engine and emergency procedures. The company required that all captains have airline transport ratings and that all copilots have commercial and instrument ratings. The chief pilot also said that Mr. Krauss, the copilot, was to take his examination for airline transport rating during the month of October.

At Cleveland, the company employed one mechanic whose duty it was to keep the airplanes airworthy. This mechanic had been employed by the company for 13 years. He testified that all maintenance work pertaining to the aircraft, engines, or propellers, etc., such as overhauls, was done by authorized overhaul agencies and not by him. His work required him to perform minor repairs and daily inspections. He held an airman certificate with mechanic, airframe and powerplant ratings and a written inspection authorization.

Analysis

The Board believes that either Captain Noonan or his copilot was briefed by the U. S. Weather Bureau prior to departing Cleveland. The weather forecasts available to the crew at the time of departure from Cleveland indicated that a return trip VFR might be possible although the weather would be marginal for VFR flight, particularly in the southwestern Pennsylvania area. Later forecasts definitely indicated that this portion of the flight should be made IFR. These latter forecasts would have been available if requested en route or by telephone while at Hot Springs. Although this may be why the captain attempted to fly VFR to Johnstown it in no way excuses him for not taking the necessary precautionary measures expected of a trained pilot, namely, the checking of existing and forecast weather at a turnaround point when a stop of approximately two hours is involved.

The distance from Hot Springs to the scene of the accident is 135 miles and the direction is almost due north. The investigation revealed that N 80G flew approximately 70 minutes before striking the mountain. This elapsed flying time is considered unusually long for an aircraft that averages approximately 198 knots true airspeed at an average altitude of 5,000 feet during cruise. It was determined by computation, using the above airspeed and a wind component of 25 knots from the northeast, that the aircraft should have flown the distance in 39 minutes. Therefore, it is concluded that a direct course was not flown.

A study of the aeronautical chart shows that the direct course to Morgantown-Johnstown would be flown over mountainous terrain all the way. Along and adjacent to this course are mountains rising to an elevation of nearly 4,900 feet. However, a course to the northwest from Hot Springs would be flown over only 48 miles of these mountains before reaching much lower terrain.

Considering all known facts it is believed most probable that Captain Noonan, first having decided to fly to Johnstown VFR, took off from Hot Springs and flew toward the northwest; that he probably continued in this general direction until well clear of the mountains and then turned to the north. This latter direction would then have been maintained until the aircraft was near Morgantown where a change to a northeasterly heading, toward Johnstown, would have been made.

This general flight path is considered most likely because: The weather north and east of Hot Springs was unfavorable, while to the west were somewhat higher cloud ceilings and lower terrain. Another factor worth considering is that only a short time before departing Hot Springs the pilot had flown in from the northwest and knew what the weather was in that area. Such a course of action is understandable but what is not understandable is why the pilot elected to fly toward and into lowering ceilings without obtaining an IFR clearance. Complete weather information was available during the flight from a number of sources, and an IFR flight plan could have been filed en route. Airway navigational facilities were available for instrument flight en route and at Johnstown for an instrument approach. Even without the latest weather information it must have been obvious to the pilot as the flight progressed that the weather was deteriorating in the direction of Morgantown. Why a pilot of his capabilities as an instrument pilot would deliberately fly into such weather conditions at an altitude insufficient to clear the terrain and without the proper clearance is unexplainable.

Findings

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

1. The aircraft and the crew were currently certificated.

2. The gross load of the aircraft was under the maximum allowable weight and was properly distributed.

3. The crew was probably briefed by the U. S. Weather Bureau for the trip to Hot Springs and return, prior to departure from Cleveland.

4. The VFR flight from Cleveland to Hot Springs was routine.

5. The weather conditions north and east of Hot Springs at the time of the return required flight in accordance with instrument flight rules; this was not done.

6. No telephone or aircraft radio contacts were made by the crew with any CAA communications station, either to file a flight plan or request weather information.

7. The aircraft was heard but not seen flying a northeasterly heading in the overcast near the accident site.

8. The aircraft was equipped for instrument flight.

Probable Cause

The Board determines that the probable cause of this accident was the action of the pilot in attempting VFR flight under instrument conditions over mountainous terrain.

BY THE CIVIL AERONAUTICS BOARD:

/s/ JAMES R. DURFEE

/s/ CHAN GURNEY

/s/ HARMAR D. DENNY

/s/ G. JOSEPH MINETTI

/s/ LOUIS J. HECTOR

SUPPLEMENTAL DATA

Investigation and Taking of Depositions

The Civil Aeronautics Board was notified of the accident the evening of October 6, 1957. An investigation was immediately initiated in accordance with the provisions of Section 702 (a) (2) of the Civil Aeronautics Act of 1938, as amended. Depositions were taken in connection with the investigation of this accident on October 14, 1957, at Cleveland, Ohio; November 21, 1957, at Chicago, Illinois; and November 22, 1957, at Kansas City, Missouri.

The Operator

The Standard Oil Company of Ohio, Inc. is an Ohio corporation with its principal offices at Cleveland, Ohio. The company owns and operates several aircraft which are based at Cleveland, Ohio, and Tulsa, Oklahoma. These aircraft are used solely for the transportation of company executives.

Flight Personnel

Warren F. Noonan, age 40, was employed by the company June 1, 1947, and remained with the company until October 1, 1950, at which time he left to fly for another company. He was re-employed June 16, 1957. He held a currently effective airman certificate with an airline transport rating and a rating for Lodestar aircraft. He had a total of 10,000 flying hours, of which 3,000 or more were in Lodestar aircraft. His last CAA class one physical was November 15, 1956.

Theodore O. Krauss was employed by the company August 1, 1956. He held a currently effective airman certificate with commercial, single- and multi-engine land, and instrument ratings. He had a total of 3,600 flying hours, of which approximately 200 were in Lodestar aircraft. He received his last first-class physical examination July 29, 1957.

The Aircraft

The aircraft, a Lockheed Lodestar, model 18-56, serial No. 2351, N 80G, was manufactured February 5, 1943. It had a total of 4,608 flying hours. The aircraft was equipped with two Wright 1820-72-WA engines and model 23E50-423 Hamilton Standard propellers with 6339A-12 blades. Time since overhaul on both engines was 188 hours. The aircraft was equipped with de-icing boots on its wings and empennage. It also had propeller blade de-icers and a heated pitot tube.