

No. 13

Philippine Air Lines, Inc., DC-3C, PI-C17, accident on Mount Rabañgan, Sablayan, Occidental Mindoro, The Philippines on 29 June 1966. Report, dated August 1966, released by the Aircraft Accident Investigation Board, Civil Aeronautics Administration, the Philippines

1. - Investigation1.1 History of the flight

Flight 785 was a scheduled domestic VFR flight from Manila to San José with an intermediate stop at Mamburao. The aircraft departed Manila at 1030 hours local time and arrived at Mamburao after an uneventful flight. It then took off from Mamburao at 1204 hours. At 1215 hours, the flight requested terminal weather information from San José Radio Station. The requested information was transmitted but was not acknowledged. A witness stated that at approximately that same time he had observed an aircraft flying at very low altitude towards the mountain on a heading of approximately 065° and that, soon after, the aircraft disappeared from sight, he heard a loud explosion coming from the mountains east of his position. Subsequent efforts of San José Radio Station to contact the flight on both VHF and HF frequencies proved unsuccessful. In the afternoon of 1 July 1966 the wreckage of the aircraft was found at 2 300 ft AMSL in a ravine at the northern slope of Mt. Rabañgan (altitude 3 500 ft) which is approximately midway between Mamburao and San José and approximately 10 nautical miles inland. The accident occurred at 1217 hours.

1.2 Injuries to persons

Injuries	Crew	Passengers	Others
Fatal	4	22	
Non-fatal		2	
None			

1.3 Damage to aircraft

The aircraft was destroyed by impact and the ensuing fire.

1.4 Other damage

There was no other damage.

1.5 Crew information

The pilot-in-command, aged 35, held an airline transport pilot's licence with instrument rating, rated on DC-3 and VC-748 types of aircraft.

His records indicated that he had been scheduled for a qualification route check on the route Manila-Mamburao-San José and return on 4 September 1965. However, as Mamburao was closed to operations, the flight was re-routed to Lunbang instead of Mamburao. On 28 September 1965 it appeared that he received a qualification route check on the route Manila-San José-Puerto Princessa, but again this did not include Mamburao. He had flown the route Manila-Mamburao-San José and returned as pilot-in-command four times between January 1966 and 28 June 1966. His last flight on a DC-3 aircraft along this route was on 28 May 1966.

At the time of the accident he had a medical certificate, without limitation, valid until end of August 1966.

As of 28 June 1966 he had flown a total of 4 240 hours including 244 hours as pilot-in-command on DC-3 aircraft. Prior to the accident he had flown 4:30 hours during the past twenty-four hours; 264 hours during the past three months and 864 hours during the past calendar year.

The first officer, aged 29, held a commercial pilot's licence with instrument rating and rated on the DC-3 and PA-23 types of aircraft. His ground school records at PAL revealed that he obtained an average of 90.2 per cent. At the time of the accident he had a medical certificate, without limitation, valid until 11 August 1966. As of August 1965 he had flown a total of 1 777 hours including 396 hours on DC-3 aircraft.

Also aboard was an observer pilot, aged 21, who held a student pilot's licence on 8 October 1964. He also held a commercial pilot's licence issued by FAA (USA) with rating on single-engined type of aircraft. He applied for a commercial pilot's licence in January 1966, but had not yet complied with all the requirements for this licence. As of 11 February 1966 he had flown a total of 181 hours on Cessna 172, Cessna 150 and Comanche types of aircraft. At the time of the accident he had a current and valid medical certificate without limitation.

1.6 Aircraft information

The aircraft's certificate of airworthiness was valid until 18 July 1966. The aircraft had undergone No. 2 airframe and engine check 9:35 hours before the accident. Maintenance records of the airplane revealed that, due to mechanical defects, the left-hand propeller assembly was changed three times and the left-hand propeller governor assembly once between February 1966 and 28 June 1966 and that the right-hand propeller assembly was changed twice during the month of May 1966. They also revealed that on 24 June 1966 the co-pilot's altimeter was found to be indicating 100 ft lower than that of the pilot-in-command's at the same QNH setting. The aircraft was released for scheduled operation despite this altimeter deficiency until it was replaced on 27 June 1966. A bench test showed that the co-pilot's altimeter which was removed "was leaking excessively". Further inspection after disassembly revealed "worn out stem adjustment knob and the sealing washer was in a deteriorating condition". The gross weight of the aircraft which was 26 000 lb at take-off, and its centre of gravity were computed to be within the allowable limits.

The type of fuel being used was not stated in the report.

1.7 Meteorological information

Weather observations over San José Airport, Mindoro, on 29 June 1966 were as follows:

1100 hours - ceiling: broken 2 000 ft, high overcast; visibility 15 km; precipitation; wind south 15 - 20 kt; QNH 29.96 in/Hg; temperature and dewpoint 10°C

1200 hours - ceiling: broken 1 000 ft high overcast; visibility 15 km; precipitation; wind south 19 - 24 kt; QNH 29.94 in/Hg; temperature and dewpoint 10°C

1300 hours - ceiling: broken 1 500 ft overcast; visibility 15 km; precipitation, wind southwest 19 - 24 kt; QNH 29.93 in/Hg; temperature and dewpoint 10°C.

According to ground witnesses the weather in the vicinity of the crash site at the time of the accident was dark with heavy rain. The wind was coming from the southwest at a speed of about 20 to 25 kt.

The two passenger survivors testified that shortly after the aircraft was airborne at Mamburao, it encountered heavy rain and dark clouds. The clouds were so dark that the wing tips could not be seen from the inside. Shortly after entering the clouds, both witnesses felt that the airplane went up and down three times and banked to both sides several times before the initial impact.

1.8 Aids to navigation

The aircraft was rated for IFR and was equipped with aids of two ADFs and a VOR.

San José Airport was equipped with a non-directional beacon and an aeronautical radio station operated by PAL. Both were operating normally at the time of the accident.

1.9 Communications

No communication difficulties were encountered until 1215 hours when the aircraft requested weather information at San José. This was the last message received from the aircraft which crashed 2 minutes later.

1.10 Aerodrome and ground facilities

No information contained in the report.

1.11 Flight recorders

Not mentioned in the report.

1.12 Wreckage

Examination of the wreckage revealed that, except for the outer section of the wings and tail surfaces, the aircraft was damaged by impact and ground fire. The fuselage was severed between stations at 363.5 and 372.5 and the rear portion was found 20 ft from the main wreckage.

Damage to the aircraft was such that its airworthiness before impact could not be established. Shears in the trees indicated that at impact the aircraft was flying on a heading of approximately 060° and descending. It finally settled upside down at a heading of 240° and caught fire.

1.13 Fire

Fire broke out following impact.

1.14 Survival aspects

Most of the occupants were thrown out of the aircraft and sustained injuries and burns of varying degrees. Two passengers survived the accident. At impact one of the survivors was rendered unconscious apparently after his forehead hit the seat in front of him. After final impact, the other survivor noticed that the fuselage was severed immediately in front of the fourth seat from the rear. Both survivors testified further that the "Fasten Seat Belt" and "No smoking" signs were on before the airplane flew into the clouds and they observed nothing unusual with the aircraft.

1.15 Tests and research

No information was contained in the report.

1.16 Dispatch of the flight

The flight was cleared and dispatched by a licensed dispatcher who was route-qualified in the Manila-Mamburao-San José route before the accident. It was cleared to fly VFR along the airline established VFR route with a minimum en-route altitude of 3 500 ft between Mamburao and San José. The dispatcher testified that he gave weather briefing to the pilot before the flight with the information that continuous heavy rain was expected along the Mamburao-San José segment. The dispatcher maintained flight watch but he did not know the arrival and departure time of Flt. 785 at Mamburao Airport until another aircraft was dispatched to check the arrival and departure of Flt. 785 at Mamburao. The normal procedure is to relay the arrival and departure time of their flight at Mamburao to Manila through San José Radio. In this particular flight, this procedure was not observed. San José Radio reported to PAL Flight Control in Manila only when Flt. 785 was overdue.

2. - Analysis and Conclusions

2.1 Analysis

From all available evidence it was concluded that thirteen minutes after take-off the pilot encountered instrument meteorological conditions en-route whilst flying on a VFR flight clearance. The actual weather in the vicinity of the crash site was substantially similar to the weather forecast that had been conveyed to the pilot during the weather briefing prior to the flight.

The flight had been cleared to proceed VFR via the company established VFR route: for the segment Mamburao-San José this route was along the shoreline on a heading of 155° with a minimum en-route altitude of 3 500 ft.

Witnesses located some 10 miles inland observed the aircraft coming from the direction of the coastline and flying on a heading of 065° at a very low height above terrain towards a mountainous area. The ground witnesses and the two survivors indicated that the aircraft then entered cloud and crashed shortly thereafter, the accident site being 2 300 ft AMSL. From the flight path being flown it could be inferred that the pilot was attempting to return to Mamburao when the accident occurred.

Due to the damage sustained by the aircraft as a result of the impact and the ensuing fire the Board was unable to arrive at a firm conclusion regarding the airworthiness of the aircraft prior to impact, however, according to the maintenance records and the history of the aircraft there was no reason to believe that the aircraft was not airworthy at the time of the accident.

No positive evidence was found indicating that the observer pilot was acting as co-pilot on this particular flight although from the remarks made by the pilots-in-command of previous scheduled flights, observer pilots, while manifested as such, may have been allowed to manipulate the controls when the weather en-route was favourable.

2.2 Conclusions

(a) Findings

The crew were properly certificated, however, the pilot-in-command did not receive the route qualification check required by the CAR.

The aircraft had a valid certificate of airworthiness and its weight and centre of gravity were within allowable limits at take-off.

The weather and the sky condition at the time the airplane as seen over Sablayan was described as low thick dark clouds with strong wind and heavy rain. The actual weather in the vicinity of the crash site was substantially similar to the weather forecast that was conveyed to the pilot by the dispatcher during the weather briefing prior to the flight.

Thirteen minutes after take-off the pilot encountered instrument meteorological conditions en-route under a VFR flight clearance.

From the approximate flight path of 060° obtained during the investigation it may be inferred that the pilot was attempting to return to Mamburao when the aircraft struck a ravine on Mt. Rabañgan.

(b) Cause or Probable cause(s)

The Board determined that the probable cause of the accident was misjudgement of the terrain clearance which resulted in the collision with trees. The instrument meteorological conditions en-route accompanied by severe turbulence and strong gusty winds over the crash site were a contributory factor.

3. - Recommendation

The Board recommended that all airports served by airlines shall be provided with an aeronautical radio station. The Board further recommended that flight crew requirements shall be strictly observed in airline operations.