

No. 6

Empresa Servicios Especiales Aereos "SEA", Curtiss C-46A, HK-613, accident on Cerro del Espinazo, to the west of Cúcuta, Colombia, on 4 October 1965. Report dated 31 March 1966 released by the Department of Civil Aviation, Colombia

1.- Investigation1.1 History of the flight

The flight was a non-scheduled domestic cargo flight (the first two segments of the flight were uneventful). After boarding 162 crates of beer and one passenger at Cúcuta the crew requested clearance to take-off for Arauca at 1042:48 hours. Clearance was given by the control tower for runway 20 with a south-southeast wind at 18 kt. The aircraft used more than $\frac{3}{4}$ of the runway for take-off and initiated a turn over the city, returning over the aerodrome to gain height. At 1058 hours it reported departure to the southeast, climbing in visual meteorological conditions to 7 500 ft and estimating Santo Domingo at 1113 hours. It then changed to en route frequency 6529.5 as authorized by the control tower. According to witnesses, when the aircraft was at approximately 4 500 to 5 000 ft, flames were seen coming from the starboard engine. According to the San Antonio (Venezuela) tower operator, the aircraft which was flying at the time in the vicinity of that airport was instructed to land immediately when the fire was observed. No reply was received. The aircraft continued on its course towards Cúcuta Airport and a few seconds later the starboard wing and engine were seen tearing off from the aircraft. The rest of the aircraft immediately started to roll slowly to the left and moments later struck the ground on Cerro del Espinazo, a hill located approximately 5 km to the west of Cúcuta. The accident occurred at approximately 1105 hours.

1.2 Injuries to persons

Injuries	Crew	Passengers	Others
Fatal	3	1	
Non-fatal			
None			

1.3 Damage to aircraft

The aircraft was totally destroyed.

1.4 Other damage

There was no other damage.

1.5 Crew information

The pilot-in-command held a senior commercial pilot's licence. He also had an instrument rating, an inspector's rating and an instructor's rating for C-46/C-82 aircraft. He also had a flight radio operator's licence issued 7 April 1958 and a medical certificate valid until 8 December 1965.

He had been fined several times between 1950 and 1952 for infraction of legal provisions, for flying after expiry of his radio licence, for carelessness and infraction of safety rules and for violation of air traffic rules. On 10 April 1965 he was involved in an accident at Cazaderos (Cúcuta) Airport, and the major contributing factor was pilot error through failure to carry out pre-flight checks.

The co-pilot held a commercial pilot's licence issued on 16 September 1963. He had an instructor's rating for single-engined aircraft up to 3 500 kg. He also had a flight radio operator's licence. His medical certificate was valid until 16 March 1966. No disciplinary action was noted on his personal record.

The flight engineer held a licence and was authorized to work as inspector of aircraft and engines for the airline. No disciplinary action was noted on his personal record.

1.6 Aircraft information

The certificate of airworthiness of the aircraft was valid until 21 June 1966. The aircraft was to be operated by day only. The aircraft's radio certificate was valid until 11 March 1966. The last inspection of the aircraft by an official of the Department was on 22 June 1965. An accident was recorded in the aircraft's log on 10 April 1965.

According to Resolution 921 of November 1964 the operating permit for the airline (SEA) was renewed for a period of one year from that date. Article 6 "A" of the Resolution shows that the airline was not complying with the current provisions of the Aeronautical Regulations Manual.

The maximum permissible operating weight of the aircraft at sea level was 20 865 kg. However, according to the weight and balance sheet the aircraft's actual weight was 22 360 kg, an overload of 1 495 kg.

It was also observed that the pilot's signature on the weight and balance sheet was forged.

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

1.7 Meteorological information

The weather was good and did not contribute in any way to the accident.

1.8 Aids to navigation

Not relevant to this accident.

1.9 Communications

No communications difficulties were mentioned in the report.

1.10 Aerodrome and ground facilities

Not relevant to this accident.

1.11 Flight recorders

Not mentioned in the report.

1.12 Wreckage

The starboard wing was found upside down on a northeast ridge of El Espinazo hill. It was totally destroyed and melted by the fire. The remainder of the aircraft was found on the other side of the hill, about 500 m away from the starboard wing and was strewn over an area of approximately 200 m in diameter. It was completely destroyed by impact.

1.13 Fire

There was a fire in flight in the starboard wing and engine.

1.14 Survival aspects

No information was contained in the report.

1.15 Tests and research

None mentioned in the report.

2.- Analysis and Conclusions

2.1 Analysis

Examination of the wreckage revealed that the hinges connecting the starboard wing outer section to the wing centre section did not fail but that they were damaged by the impact and the subsequent fire.

The starboard engine was recovered in a depression approximately 100 m from the starboard wing and evidence of fire on the lower part of the engine was found. The carburettor which had been torn from its base by the impact did not show any sign of fire. The propeller was torn off the reduction gear housing of the engine and one of the blades was missing and was not recovered. One of the other two blades was found bent forward indicating that the engine was still developing power when it struck the ground.

According to witnesses when the aircraft reached a height of 4 500 to 5 000 ft above the ground flames were seen coming from the starboard engine. Moments later the starboard wing and engine were observed being torn off from the aircraft as a result of the fire, and the rest of the aircraft (fuselage, port wing, engine and propeller) started to roll slowly and crashed on a hill.

2.2 Conclusions

Findings

The flight crew were properly certificated, but the pilot-in-command had several infractions on his personal record and was involved in an accident in April 1965.

The aircraft's certificate of airworthiness was valid. However the following violations of Aeronautical Regulations were noted:

- (a) On 25 September an official of the Department delayed the departure of HK-613 after finding in the log four reports on which corrective action had not been taken, three flights without the pilot's signature and five pages without indication of the data relating to the aircraft engines and propellers; a period of five days was allowed for presentation of the data to the civil aviation authorities. This was not complied with by SEA and provisions 4.4.17, 40.4.18.1 and 40.5.15 of Part IV were thus violated.
- (b) In the relevant records of the Directorate of Civil Aviation statistics were given up to the month of July but those for August and September were missing in violation of provisions 40.4.18 of Part IV and Circular No. 17 of 18 June 1965.
- (c) According to Memorandum DHBQ-297 of 9 April 1965 the Sectional Authorities of Barranquilla reported that Technical Directive No. 62-10-2 (Aerocivil C-46-39) dealing with fire protection requirements, had still not been complied with; its objective was to prevent fire originating in an engine from extending to the well of the landing wheels: this was in violation of the requirements contained in Circular No. 37 of 27 November 1964 which allowed until 31 December for compliance.
- (d) When the airline's employees in charge of maintenance were requested to show the records of the aircraft, engines, propellers and accessories relating to the aircraft's log they replied that nothing was wrong; this was in violation of provision 40.5.3.5, 40.5.16 and 40.5.17 of Part IV.

At take-off the aircraft was overloaded by 1 495 kg.

The weather was good and did not contribute in any way to the accident.

The aircraft was seen by the San Antonio (Venezuela) control tower and by reliable personnel at Cazadero Airport in Cúcuta to the southeast of that city at a height of about 4 500 to 5 000 ft, with the starboard engine in flames. A few seconds later, the starboard wing broke off and the aircraft rolled slowly to the left and crashed.

Cause or Probable cause(s)

The accident was attributed to a maintenance error consisting of inadequate service and inspection of part of, or systems of the starboard engine, giving rise to a fire in an undetermined part of the accessories section of that engine.

A contributing factor was a maintenance error consisting of failure to comply with Technical Directive No. 62-10-2 (Aerocivil C-46-39).

3.- Recommendations

It was recommended that the Sanctions Committee should convene to determine what sanctions should be imposed:

- (a) on the airline SEA for not keeping the journey log book up to date, failing to enter pilots' reports and data on the aircraft, engines and propellers, thus violating the provisions Nos. 40.4.17, 40.4.18.1 and 40.5.15 of Part IV of the Aeronautical Regulations Manual;
 - (b) on the airline SEA for failing to send forms EA and EM and the copies of the log corresponding to the months of August and September, in violation of provision 40.4.16 of Part IV of Circular No. 17 of 18 June 1965;
 - (c) for not complying with Technical Directive No. 62-10-2 (Aerocivil) C-46-39 issued in Circular No. 37 of 27 November 1964;
 - (d) for failing to maintain in the airline's records, data on the aircraft, propellers and accessories in violation of provisions 40.5.3.5, 40.5.16, 40.5.17 and 40.13.8 of Part IV of the Regulations Manual;
 - (e) for violation of No. 40.6.11 of Part IV of the Manual having dispatched the aircraft overloaded by 1 495 kg;
 - (f) on the dispatcher of the aircraft for having made out a weight and balance sheet with the aircraft overloaded by 1 495 kg;
 - (g) on the dispatcher for having presented to the civil aviation authorities in Cúcuta the copy of the weight and balance sheet with a forgery of the pilot's signature.
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