

No. 49

Línea Aeropostal Venezolana, Super Constellation, YV-C-ANC  
crashed on Alto del Cedro Mountain, Venezuela, on 14 October 1958.  
Report released by the Directorate of Civil Aviation, Venezuela.

Circumstances

The aircraft was on a flight between Panamá and Maracaibo, Venezuela, carrying a crew of 6 and 17 passengers. It reported over the Riohacha intersection at 2351 hours at 15 000 ft and estimated its arrival at Maracaibo at 0030 hours. At 0015 hours the flight reported it was 35 miles out and at 10 000 ft. The last contact with the aircraft was at 0022 hours. It crashed on Alto del Cedro Mountain in the Sierra de Perijá killing all 23 persons aboard.

Investigation and Evidence

The wreckage was found 48 nautical miles from Maracaibo directly on the Maracaibo-Riohacha route, on the Colombian-Venezuelan border. The aircraft had hit very high tree tops in the wilderness of the high hills of the Sierra de Perijá, at a height of about 1 800 ft. It continued travelling through the air on a 120° course for about 1 500 ft among the trees, and for an additional 1 000 ft over a clearing. The final impact occurred directly against the rocky wall of a ravine at a height of about 1 500 ft. The heavier parts fell to the rocky bottom of the ravine, 125 ft below.

It was evident that on initial impact the aircraft was in a straight and level position, laterally and longitudinally, or at least approximately so. The aircraft disintegrated left wing and tail first, followed by the fuselage centre part and the right wing and tail. All impacts against the trees occurred between 60 and 80 ft above the ground. Although the fuel tank areas of the left wing had disintegrated

during the early part of the accident, there was no evidence of fire prior to the final impact.

The evidence attracting most attention in the operational phase of the flight was the pilot's report that he was 35 miles out of Maracaibo, whereas the accident occurred a few minutes later at a distance of 48 miles out. It was proved that the report was sent at 0015 hours and that conversation was renewed seven minutes later, from which it is deduced that this position was at least 52 miles out at 0015 hours. It is proved below that he was possibly even further out. At a normal descent rate of about 600 ft/min, it would take about 13 minutes to descend from 10 000 ft to the 1 800 ft altitude at which the accident occurred; this gives rise to the belief that the accident took place at 0028 hours. If his rate of descent was above or below 600 ft/min, the time of the accident would, of course, be different; however it could not have occurred before 0022 hours.

Again on the assumption that the rate of descent was 600 ft/min at an average descent ground speed of about 232 knots, his position, when he reported at 10 000 ft, must have been 98 miles out of Maracaibo or six miles from the town of Riohacha. Further calculations prove that he must have initiated descent from 15 000 ft at about 0007 hours, 128 miles out of Maracaibo and only 16 miles on this side of the Riohacha intersection. (This calculation is based on an average flying speed of 280 knots, in descent, less the windspeeds according to the report). If a 165-knot TAS cruising speed at 15 000 ft is taken, less 15-knot headwinds, and his reported position over the Riohacha Intersection at 2351 hours,

his true position at the time of that report ought to have been 191 miles from Maracaibo, or 45 miles from the Riohacha Intersection.

If this reported wind speed is applied, it can be deduced that when the pilot advised having reached position Tango/2, he was actually seven miles from that position. This is not considered a serious error since in view of the lack of radio aids in that area, it would have been difficult, if not impossible, to establish one's position with greater accuracy. It should be noted, however, that all his position reports up to and including Barranquilla were transmitted at exactly the estimated time. His subsequent position report over the Riohacha Intersection was made six minutes ahead of the planned time. By drawing a line between Tango/2 and the point indicated in the preceding paragraph (45 miles from the Riohacha Intersection), it can be seen that this line is exactly parallel to the required heading (account being taken of the wind) to maintain precisely the Barranquilla-Riohacha Intersection course (41°). If the pilot flew this route, he would arrive at the presumed Riohacha Intersection at 2349 hours, i.e., only two minutes before his report at 2351 hours.

Considering that the pilot was sending his position reports exactly according to schedule, it would appear that he sent them merely pro forma, including the report over Barranquilla which he never reached.

The minimum altitude for the Red 13 stretch between Riohacha Intersection and Maracaibo is 9 000 ft. If an emergency had occurred after the 0022 hour contact, and assuming that the aircraft was at the correct altitude, there would have been sufficient time (1) for a radio transmission and (2) for the passengers to fasten their safety belts. Neither of the two measures was applied. The differences in en route altimeter setting were not sufficiently significant to produce important

errors in estimating altitude, and minor errors of this kind would not have brought about this accident. While it is obvious that a small difference in altitude would still have allowed the aircraft to overfly the mountain, this does not alter the fact that the pilot had descended to an altitude greatly below that recommended for this area where navigational aids are scarce.

It is known that the pilot descended from 15 000 ft without prior clearance. The Commission was, nevertheless, informed that such a procedure is correct provided that the aircraft is flown by visual reference. Weather conditions in that area during the night of the accident made it impossible to establish whether the descent could be performed entirely by visual reference. However, there were variable cloud conditions over the weather reporting stations, so that a visual descent would have been very difficult to carry out, to say the least.

#### Conclusions

The pilot turned northwest on reaching position Tango/2, instead of turning at Barranquilla, and flew towards a wrong position 45 miles from the Riohacha Intersection, having failed to take this discrepancy into account in calculating his distance from Maracaibo.

It is very likely that the pilot, when reporting 35 miles from Maracaibo, had seen the Carrasquero lights and the surrounding gas flares, through a thin layer of cloud below and believed they were the lights of Maracaibo.

The pilot had no way of definitely determining his position in the area, and, therefore, ought to have taken greater precaution against descent at a mistaken location. His best alternative should have been to remain at a safer altitude until (1) he sighted the Maracaibo lights (not the glare), or (2) obtained oscillation of the radio compass needle over Maracaibo.

Crew Information

The captain had a total of 2 134:12 flying hours in Super Constellations. However, with the exception of 147 hours, he had accumulated all this time as first officer. He had flown this route only four times having been assigned to it on 1 September 1958. During the 40 days preceding the accident he had flown 147:03 hours, and his last previous flight was on 10 October 1958. He held the necessary licences and his last checked flight proved satisfactory.

The first officer had 469:38 flying hours as co-pilot on Constellations, as well as 600 hours as captain on Martin aircraft. Like the captain, he had flown this route only four times. During the forty days prior to the accident he had flown 136:13 hours, his last previous flight being on 10 October 1958. He was properly qualified to discharge the duties of first officer.

Probable Cause

The accident occurred owing to premature descent caused by the pilot's failure to allow himself a suitable margin for (1) altered flight course and (2) shortage of navigational facilities in the area.

Recommendations

The following recommendations were made following the investigation:

- 1) to establish a procedure whereby a pilot in IFR flight must maintain

his height until he is cleared to initiate descent or, failing that, is under the obligation to cancel his IFR plan, weather permitting;

- 2) the airline should not assign to the same flight two individuals (captain and co-pilot) neither of whom is sufficiently familiar with the equipment and/or route;
- 3) pilots should be given instructions to maintain cruising altitude until such time as a definite position check is obtained, either visually or by radio;
- 4) to teach pilots, during their training, the importance of adhering to the flight plan. Any deviation from this procedure should be communicated to the FIR. A regulation requiring the pilot to transmit any new ETA would make it more difficult for the pilot later to ignore or forget the new ETA;
- 5) to install additional radio aids in the area, such as radio beacons or radio ranges at the Riohacha aerodrome and/or an approach beacon on Red 13 at a suitable distance from Maracaibo, say about 25 miles. This approach beacon would be highly useful even if a radar facility at Maracaibo becomes feasible.

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