

No. 9

Aviación y Comercio (AVIACO), SE-210, EC-BIC, accident at Montrove, La Coruña, Spain, on 13 August 1973. Report not dated, released by Subsecretaría de Aviación Civil, Spain.

1.- Investigation

1.1 History of the flight

The aircraft was on a scheduled passenger flight from Madrid to La Coruña. It took off from Madrid/Barajas at 0830 GMT and proceeded normally. At 0914 radio contact was made with La Coruña tower and the flight crew reported 3 minutes away. The tower controller informed the flight that the airport was BELOW MINIMA - COMPLETELY BELOW MINIMA, that he had just asked the weather service for the trend and that improvement would be slow and take at least one hour. The flight crew then decided to hold over LIMA ROMEO ALPHA and said they would report when holding. Shortly thereafter they informed the tower that they would make an approach down to minima to get a more precise idea of the weather and would hold thereafter. The controller said he was switching on the VASIS and at 0921 he informed the flight that visibility was around 350 m, although he could not see the VASIS at the threshold of Runway 22. The flight then reported at 3 000 ft beginning the approach. At 0923 the controller reported a visibility of 600 m. At 0924 the pilot said he would attempt to land, that he was 2 200 ft on approach and had not yet entered clouds, which meant that the cloud layer was very thin. At 0925 the controller told the flight that the flashing lights of the VASIS on Runway 22 were quite visible from the tower. At 0928 he reported 800 m visibility, but that a light breeze was coming up and fog was again closing in from the sea. The pilot told the tower that he had descended to the minima and seen nothing and would therefore begin to hold. At 0932 the flight crew reported holding at 6 000 ft and requested to be informed of any change that might take place. At 0934 the controller reported a visibility of 400 m, that the VASIS was still visible and that the Runway 22 threshold, which was 894 m from the tower, had become slightly clearer. The flight crew acknowledged and said that, since they had fuel, they would make another attempt, although the tower suggested holding a little to see if the weather would improve. At 0935 the flight crew said they would try to break out in any case as the weather was clearer than before. At 0935 the controller informed the flight that the QFE was 1007.9 and the QNH was 1020 and instructed it to switch on the aircraft lights when passing the beacon on approach. At 0936 the flight crew reported passing LIMA ROMEO ALPHA on approach. The controller answered that the lights of the VASIS were no longer visible and that some fog had collected over the runway threshold. The pilot then decided to resume holding. At 0945 the controller told him that visibility to the north was 700 m and in other directions 500 m, and that the runway threshold was visible from the tower. The pilot said he could see the fog breaking from above and that he would wait a little for an improvement. At 0951 the controller reported a visibility of 800 m in all sectors and at 0958 a horizontal visibility of approximately 1 000 m and a vertical visibility of 100-150 m. At 1001 the controller transmitted the QNH 1019.8. At 1009 he reported a horizontal visibility of 1 km and a vertical visibility of 100-150 m and at 1012 a horizontal visibility of 1 200 m and a vertical visibility above the airfield of about 150 m. At 1020 he reported a horizontal visibility of 1 500 m and a vertical visibility of 150 m and at 1023 that the vertical visibility had improved to between 250 and 300 m. The pilot acknowledged and said he was leaving 5 000 ft for approach. The controller requested that the aircraft lights be switched on in case they could be seen when leaving LIMA ROMEO ALPHA. At 1027 the controller instructed the flight to report beacon inbound

to the runway. The flight acknowledged and reported outbound. At 1031 the flight reported passing LIMA ROMEO ALPHA. At 1032 the flight reported discontinuing the approach. The controller informed the flight that he had spotted it momentarily just ahead of the runway, but that it had disappeared again in the fog. At 1038 the pilot said he was initiating another approach and would report over LIMA ROMEO ALPHA. The controller said the situation was the same as during the last approach. At 1039 the pilot asked whether the wind was zero and the controller replied COMPLETELY CALM. At 1039 the pilot reported over LIMA ROMEO ALPHA on approach and the controller said he would watch for the aircraft. At 1040 the pilot replied Roger. At 1041 the controller reported that a slight wind had arisen - 60°/5 kts - but despite several repetitions no answer was received. At 1046 the tower was informed by the chief of the airport that the aeroplane had crashed at Montrove. The above data were all taken from the transcript of the tower tape recording at La Coruña Airport.

The aeroplane had collided with some eucalyptus trees, crashed to the ground and burned out.

Time (GMT) of accident: approximately 1040 hours.

Geographical location of site of accident: approximately 3 km before the threshold of Runway 22 at La Coruña Airport. The coordinates were approximately 43°18'N; 08°23'W.

#### 1.2 Injuries to persons

Injuries	Crew	Passengers	Others
Fatal	6	79	-
Non-fatal	-	-	-
None	-	-	

#### 1.3 Damage to aircraft

The aircraft was destroyed by the crash and fire.

#### 1.4 Other damage

Private property, trees and houses were damaged.

#### 1.5 Crew information

Pilot-in-command: Airline transport pilot licence No. 794, issued 26 October 1968. Proficiency rating 794, valid 18 June 1973 to 19 December 1973.

Hours on Caravelle: 304. Total flying time: 8 610.

Co-pilot: Senior commercial pilot licence No. 1247, issued 4 August 1970. Proficiency rating 1247, valid 5 May 1973 to 13 November 1973.

Total time on Caravelle: 997. Total flying time: 6 283.

Pilot on type training: Senior commercial pilot licence No. 1377 issued 11 December 1971. Proficiency rating No. 1377, valid 1 June 1973 to 6 December 1973.

Time on Caravelle: 75. Total flying time: 1 815.

#### 1.6 Aircraft information

Certificate of Registration No. 413 and of Airworthiness No. 828, valid until 28 September 1973. Total hours at time of accident: 13 118. Hours since last 640-hour service check: 506. Hours since last 5 000-hour overhaul: 3 643. Number of landings: 9 380.

##### Engines

2 Pratt Whitney JT 8D-7.

No. 1 engine: Hours since overhaul: 5 282.

Total hours: 5 282. Hours since last service check: 137.

Number of landings: 3 559.

No. 2 engine: Hours since last overhaul: 3 092.

Total hours: 9 604.

Hours since last general overhaul: 3 020.

Number of landings: 2 992.

#### 1.7 Meteorological information

Data supplied to the tower by the Meteorological Office at La Coruña Airport on 13 August 1973 from 0900 to 1040.

The first request for information by the tower was made at 0910 and the following QAM was provided:

QAN calm QBA 150 m QNY fog. Sky invisible.

QNH 1020 mb = 30.12, Temperature = 20°C. Dewpoint = 20°C.

Owing to the reduced visibility this was virtually the only item mentioned in subsequent requests from the tower. Fluctuations of the visibility are shown hereunder:

0914 Indication that the weather would develop slowly and fog would take a long time - at least an hour - to disperse.

0918 Visibility northern zone 200 m, southern zone 250 m.

0920 Visibility 350 m.

0923 Visibility 600 m.

0927 Visibility 500 m.

0934 Visibility 400 m.

0935 Visibility north 600 m. All other directions 400 m. QFE 1007.9  
QNH 1020

0944 Visibility north 700 m, elsewhere 500 m.

0950 Visibility 800 m.

0952 Vertical visibility 100-150 m.

1001 Visibility 900 m. QNH 1019.8.

1009 Visibility 1 km. Vertical 100-150 m.

1012 Visibility 1 200 km. Vertical 150 m.

1020 Visibility 1 500 m.

1022 Vertical visibility 250-300 m.

1040 Wind 060°/05. Visibility 1 800 m.

This last information was not received by the aircraft.

The forecast conditions at La Coruña Airport indicated very slow improvement. Up to the last moment the pilot was continually informed of the weather at La Coruña, Santiago, Madrid and Valladolid.

The weather along the route was ideal, and this applied equally to Santiago Airport where, throughout the morning, there was zero wind; visibility 8 km; temperature 23° to 25° and dew-point 16°. While holding over La Coruña Airport, the flight reported that it had not yet entered cloud at 2 200 ft.

Conditions which might have given rise to ice formation were totally absent.

#### 1.8 Navigation aids

Normal.

#### 1.9 Communications

Normal.

#### 1.10 Aerodrome and ground facilities

Normal.

#### 1.11 Flight recorders

Were recovered and interpreted.

### 1.12 Wreckage of the aircraft

Around 300 m before the site of the crash the aircraft felled three eucalyptus trees and shaved the tops of 23 more, among which was found the right elevator. The aircraft embedded itself in the roof of dwellings at Pazo del Rio.

The location of the aircraft components at the accident site indicated that the impact was upside down. In particular the right stabilizer was found embedded upside down.

The cockpit separated from the fuselage on impact and was found about 10 m away from it. It did not catch fire, although a small outbreak was caused by the cockpit wiring.

The left stabilizer and the tail cone separated on impact. The left stabilizer was found 10 m from the fuselage. The right main landing gear was found about 50 m from the fuselage.

### 1.13 Fire

The aircraft caught fire on impact and three minor explosions occurred afterwards. The fuselage was completely destroyed by the post-impact fire.

The fire was brought under control rapidly. When the airport fire fighting service arrived the city fire department was already in action. The latter handed over the control to the more effective airport service which used the two vehicles available. When they left for replenishing, the city fire fighters remained on the scene. When the airport vehicles returned, they were no longer needed as the fire was virtually extinguished.

### 1.14 Survival aspects

The accident was non-survivable.

### 1.15 Tests and investigations

The investigation revealed that the aircraft was flying well below minima and struck some eucalyptus trees, first with the right stabilizer and then with part of the fuselage. The trees were standing on a small hill at an elevation of 105 m. The right elevator fouled the trees. The pilot probably applied full power and initiated a steep climb, which suggests that his speed was low. The airspeed indicators read 85 and 90 kt respectively. The altimeter read 170. The trim tab was raised 16°, the aileron controls were fully to the right, the rudder tab was 16° to the left; the cockpit clock, with the hands buckled, indicated 1005 hours.

## 2.- Analysis and Conclusions

### 2.1 Analysis

It is quite clear from the investigation that the aircraft, its engines and instruments were operating normally at all times. This was evidenced by the fact that three missed approaches were carried out down to minima without any abnormality of a technical nature being reported.

On the third approach the pilot must have caught a glimpse of the runway, and the tower controller actually saw the aircraft and so informed the pilot. The pilot must therefore have assumed that by going slightly more below the minima he would be able to land.

He apparently initiated the fourth approach at the precise time the tower reported a slight improvement in the weather. He left LIMA ROMEO ALPHA on a 21° track, in accordance with the approach chart, expecting a maximum obstacle height of 105 m, the height of the hill. The airport elevation is 97 m. Since the fog was ragged the pilot was most probably looking outside in an attempt to see the ground, without checking his altitude on the altimeter. He was suddenly faced with the eucalyptus trees, which were 12 to 15 m higher than the top of the hill, pulled back on the control column and applied full power, but was unable to prevent the right stabilizer from colliding with the trees.

## 2.2 Conclusions

### a) Results

The crew held valid licences.

The aircraft's documents were in order. From the inspections carried out at the accident site, the data collected at the tower and the data derived from the flight data recorder it is concluded that the accident was not due to mechanical failure.

The behaviour of the pilot is incomprehensible, since on a flight which should have taken a maximum of 50 minutes he spent an hour and a half holding and endeavouring to land, when it would have been much quicker and more economical to land at Santiago Airport where the meteorological conditions were favourable.

### b) Cause or Probable cause(s)

Pilot violation of the regulations and instructions governing flight over national territory, and the international standards in force in Spain.

## 3.- Recommendations

The following recommendation was made in relation to this accident:

Standards to be followed when landing in "below minima" meteorological conditions:

- 1) When an aircraft is proceeding to an airport, the Air Traffic Services shall, in their first radiocommunication with the aircraft, supply in extenso the latest weather report for the airport and add "weather conditions below minima" whenever the ceiling or visibility - or both - are below the minima published in the Spanish AIP instrument approach charts.
- 2) Pilots-in-command, if so authorized by their director of operations, may attempt an approach in "weather conditions below minima" without descending below the critical height specified in the approach charts. The purpose of the approach shall be to check whether the actual weather coincides with that given in the weather report. If the weather is above the prescribed minima the landing may be made.

- 3) When the aircraft lands in "weather conditions below minima", the pilot-in-command shall inform the chief of the airport of the reasons for his decision, and the chief of the airport shall report accordingly to the Directorate General of Air Transport.

When such report is received, a copy shall be forwarded to the company or agency responsible for the pilot-in-command with instructions to analyse the case and forward it to the Under-Secretariat of Civil Aviation.