No 27

Aerovías Nacionales de Colombia (Avianca), Constellation aircraft crashed 9 kilometres west of Lajes Airport, Azores, 9 August 1954. DGCA Portugal Accident Report

Circumstances

The aircraft, engaged on a scheduled trans-Atlantic service, had landed at Lajes Airport, Azores, at 0008 hours on 9 August 1954, having been diverted from Santa Maria where the weather conditions were below minimum. Three minutes after taking off from runway 34 at Lajes Airport at approximately 0240 hours, the aircraft collided with the ground west of the airport at an elevation of approximately 620 metres, immediately after the pilot had informed the control tower he was northeast of the airport. All 9 crew and 21 passengers perished.

Investigation and Evidence

The wreckage was found near the Monte do Boi, in the vicinity of Caldeira de Agualva, 9 000 metres west-south-west of Lajes Airport at an elevation of 620 metres at the crest of a slope of approximately 20%.

The chart at fig. 29 shows the scene of the crash and a horizontal projection of the track assumed to have been flown by the aircraft. The photograph at fig. 28 shows the scene of the accident, part of the wreckage being just distinguishable and the remainder scattered beyond the crest of the mountain. Not only did the marks on the ground indicate a violent impact, but all the evidence led to the belief that the pilot did not see the obstacle in his path.

In view of the nature of the terrain, it was difficult to believe that the aircraft could have come down at this point without first hitting some other high ground. It was, therefore, possible to plot its presumed track, prior to the crash, by drawing a line over the only possible point lower than the crash scene. It was thus determined that the aircraft flew on a heading of approximately 205° (magnetic) at an altitude lower than the elevation of the point where it eventually crashed.

On the basis of the position and condition of the wreckage, the following conclusions were reached:

1 - that the aircraft was descending on a heading of approximately 205° (magnetic);
2 - that the landing gear and flaps were retracted at the time of the crash;
3 - that the accident could not be attributed to any mechanical defect.

The regular aerodrome for commercial flights to the Azores is Santa Maria. The aircraft did not use this airport, however, as the weather conditions there were below the minima laid down by the airline for landings of its Constellation aircraft. These minima were:

Landing: Ceiling 500 feet, visibility 1-1/2 miles.

The aircraft landed normally at Lajes Airport at 0008 hours on 9 August 1954, after making a GCA approach.

According to the statement made by the briefing officer on duty at Lajes, the pilot-in-command and the navigator called at the Navigation Briefing Office at 0115 hours GMT on 9 August 1954. They requested information for preparation of a flight plan for Bermuda. The necessary explanations were provided and, when the flight plan was completed, the navigator asked what was the procedure to follow to reach the point known as "Ponto Sul". It was pointed out to him that if he flew directly to Bermuda without passing by "Ponto Sul", he would have

to fly over the mountains, the highest point of which is the Monte do Pico, rising approximately 7 615 feet above sea level. The normal procedure to be followed to reach "Ponto Sul" was explained to him and shown on his charts: When taking off from runway 34, turn right out of the traffic zone; when taking off from runway 16, climb directly towards "Ponto Sul" after passing over Praia de Vitoria. After receiving this information, the crew members called at the Meteorological Office.

The normal procedure referred to, for take-offs from runway 34, is as follows: "Following take-off, turn right, climb till 2 500 feet on heading 160° and proceed to "Ponto Sul"." This procedure was included in the first stage of the flight plan.

Communications with the tower were not recorded as the Lajes recording equipment normally works on a frequency of 126.18 Mc/s, the frequency normally used by military aircraft, whereas civil aircraft contact the tower on 118.1 Mc/s and approach control on 119.1 Mc/s. The two control officers on duty in the tower reported the communications between the tower and the aircraft to have been as follows:

> The aircraft called the tower on 118.1 and requested instructions for take-off and the following instructions were given "Runway in use 34; wind 330° magnetic, 20 Kt, altimeter 30.24 (observed at 01.56 Z); cleared to south taxiway for engine run up".
>
> This clearance was acknowledged and repeated. The aircraft then took position for take-off and reported ready for take-off.

The tower then gave the following instructions: "After take-off turn right and climb till 2 500 feet on heading 160°, then proceed to "Ponto Sul".

The aircraft took off in a normal manner towards the Northeast. The tower reported time off as 02.37 Z and instructed the aircraft to "turn right".

Shortly afterwards, the aircraft not having turned to the right, the controller asked the pilot to report his position. The pilot replied that he was northeast of the aerodrome.

After looking in this direction and still not seeing the aircraft, the controller asked the pilot whether he was flying on an approach heading or was still outbound. He received no answer.

The crew of a PAA flight which landed at Lajes at 0311 hours on the day of the accident, reported, that on approaching GP range at 9 000 feet, they heard Lajes Tower clearing the Avianca aircraft to take-off and climb to 1 600 feet. They also stated that they were about to break in on the communication as they considered the assigned altitude to be very low, but did not do so as their attention was diverted by communication difficulties.

If, in fact, this crew heard the tower instructing the aircraft to climb to 1 600 feet, without mentioning a right turn it is unfortunate that their attention should have been diverted by anything whatsoever and that they were thus unable to warn the Avianca aircraft of the imminent danger.

From inquiries made in order to clarify this point, it was learned that the controllers at Lajes Tower, in giving instructions, express altitudes simply by reading out the number, whereas for headings they pronounce each digit of the number separately. It is possible that the PAA pilot misheard 160° for 1 600' owing to the communication difficulties referred to.

In fact, according to the record of departures on the day of the accident, all of which were controlled by the same controllers, five other aircraft took off before the Avianca aircraft and all followed the normal take-off procedure. It is, therefore, considered unlikely that the sixth aircraft should have been given completely different instructions.

Probable Cause

The probable initial cause of the accident was the failure of the pilot to carry out the normal climb-out procedure following take-off from runway 34 on a flight to Bermuda and his having made a turn to the left instead of to the right, thus flying into the mountains instead of turning out to sea.

The possibility of the aircraft having been forced to make a left turn may be disregarded since, from examination of the wreckage, it appears that no mechanical failure occurred.

The procedure to be followed had been duly explained to the crew both at the briefing and in the instructions which were certainly given by the tower. It is pointed out, moreover, that the chart of Lajes in the route manual supplied to the crew clearly shows that all turns must be made towards the Northeast.

The question of a right turn following take-off appears to have been deemed a secondary matter by the crew members who called at the briefing office. They simply established that they had to proceed directly to Ponto Sul in order to avoid a collision with the mountains, the highest point of which reached 7 615 feet.

From the heading presumed to have been flown by the aircraft before it crashed, it is quite apparent that the pilot did, in fact, intend to proceed to Ponto Sul. He appears not to have realized, however, that to do so he had to turn eastward towards the sea and not to the west over the land.

It is necessary to mention that, according to his company, this was the first time that the captain had landed at Lajes and that at Santa Maria, where he had already landed several times, the take-off procedure for flights towards the Northwest in the direction of Bermuda also involves a turn towards the sea. The turn at Santa Maria is made to the left, however, as the airport is located on the extreme west of the island.

The point known as "Ponto Sul" is shown on the reproduced 1:1 000 000 chart at Fig. 30. Examination of this chart will immediately explain the reason for the adoption in the Azores control area of the standard procedure whereby aircraft are required to fly over this point before proceeding towards Bermuda, in order to avoid the high ground on Terceira, S. Jorge, Pico and Faial Islands.

Since Lajes Airport is located in the extreme Northeast of the Ihla Terceira, the requirement, for reasons of safety, to turn to the east and out to sea in order to avoid the mountains on the island needs no special comment, being obvious in view of the nature of the terrain.

Recommendations

1. The arrival and departure procedures in force must be strictly applied. These procedures and the charts illustrating them must be carefully studied whenever it is planned to use this aerodrome.

This is of particular importance whenever this aerodrome is being used for the first time.

2. A check must be carried out, in which the flight crew repeat the procedure they are about to follow or the clearance received, before they actually carry it out.

3. The pilot-in-command must always personally contact the briefing office and other information services of the aerodrome, in order to prepare his flight plan.

4. Whenever possible, and insofar as the visibility permits, the tower must follow visually any aircraft completing a take-off, in order that it may inform the pilot if the normal procedure or the instructions issued have not been followed.

Figure 28

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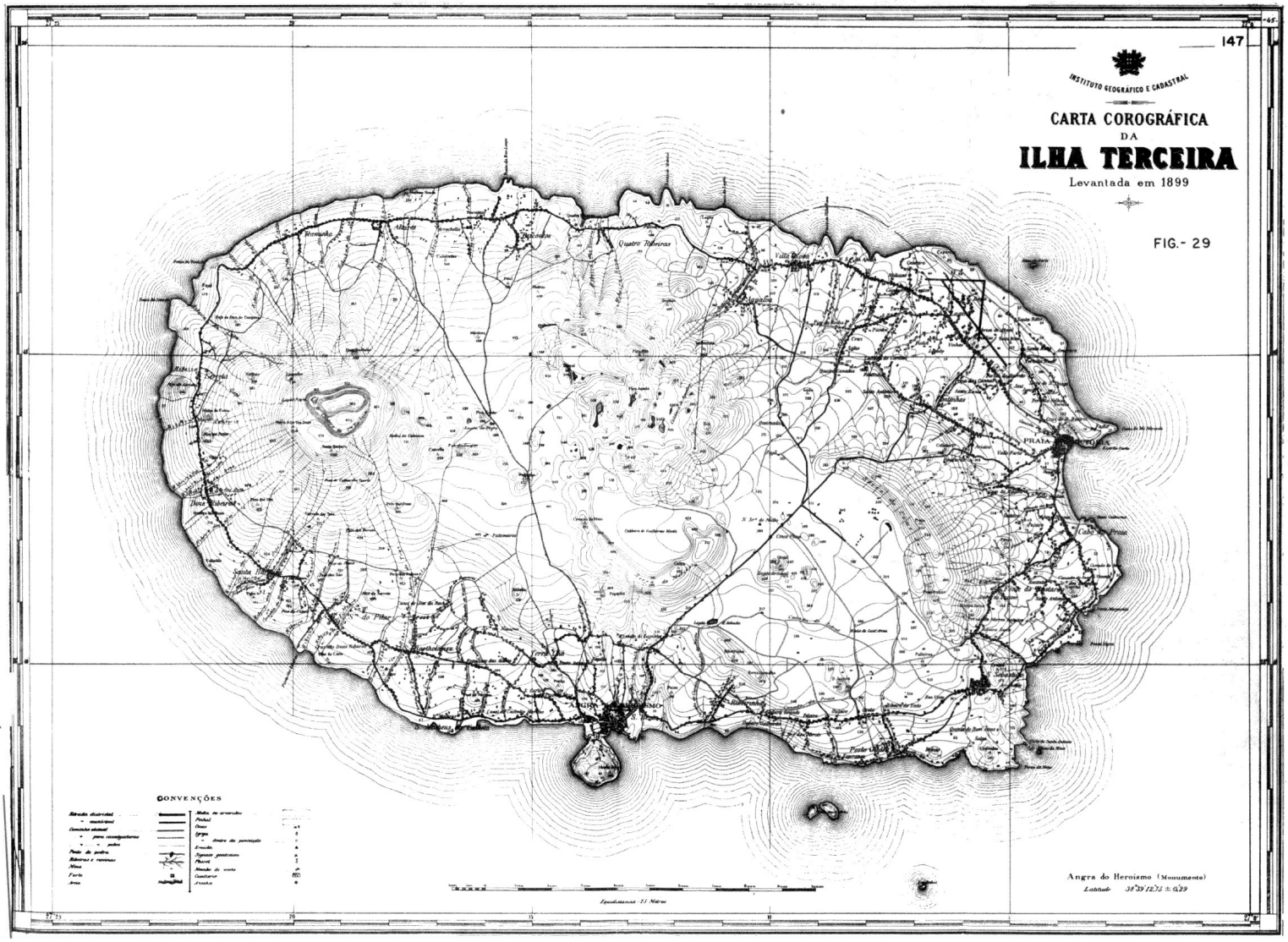
CARTA COROGRÁFICA
DA
ILHA TERCEIRA
Levantada em 1899

FIG.- 29



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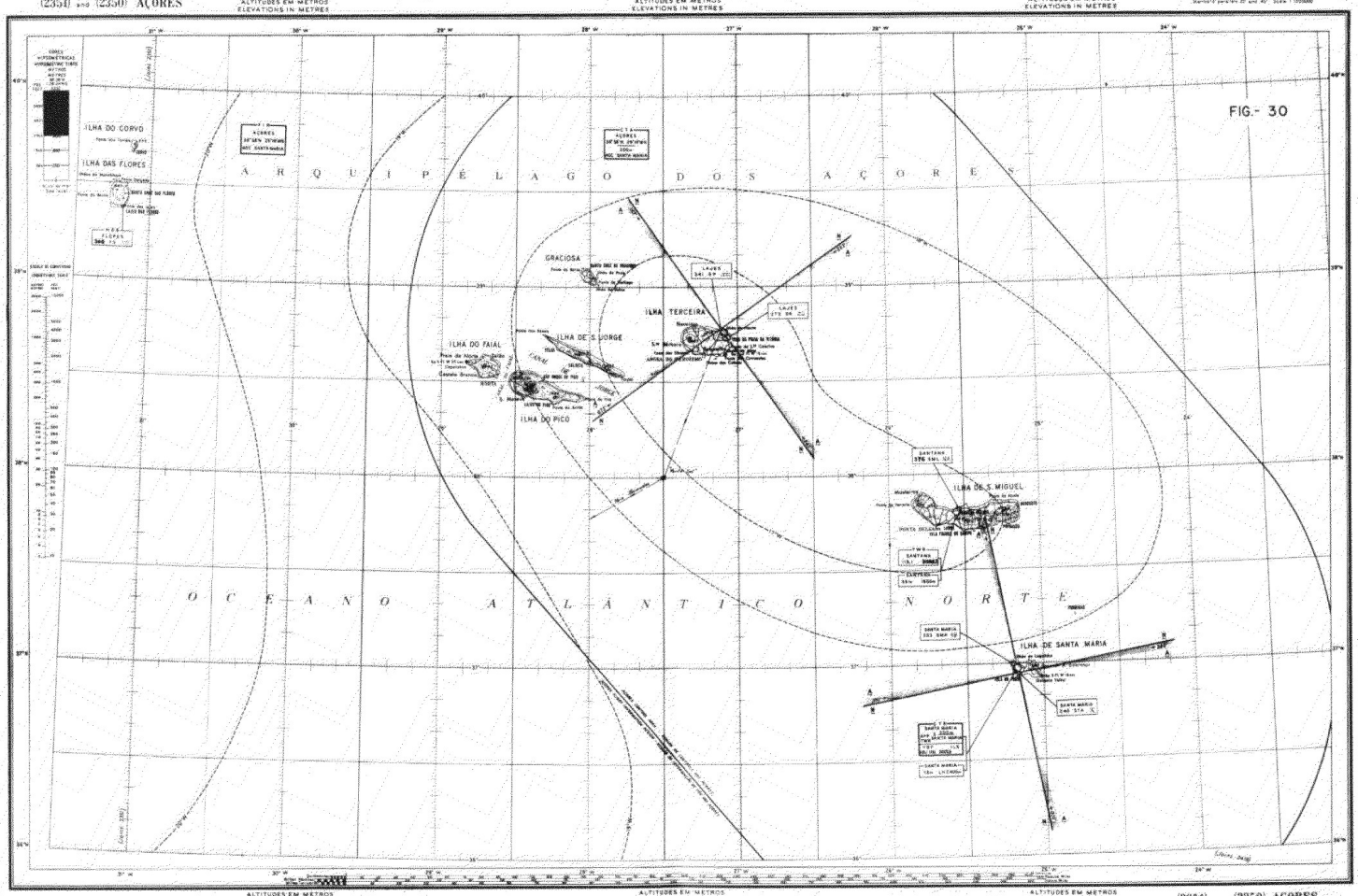
CARTA AERONÁUTICA DO MUNDO
ICAO 1:1000000

(2351) and (2350) AÇORES

ALTITUDES EM METROS
ELEVATIONS IN METRES

FIG.- 30



(2351) and (2350) AÇORES

ALTITUDES EM METROS
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INSTITUTO GEOGRÁFICO E CADASTRAL

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