No. 16

United Arab Airlines, Comet 4C, SU-AMW, accident 52 NM northeast of Bangkok Airport, Thailand, on 19 July 1962. Report released by the Director, Civil Aviation Administration, Department of Transport, Thailand, 15 November 1963.

1. Historical

1.1 Circumstances

Flight No. UA869 departed from Hong Kong for Bangkok, an intermediate stop, on a regularly scheduled international passenger service to Cairo, United Arab Republic, with 8 crew members and 18 passengers aboard. Take-off time was 1330 hours GMT. The flight plan, filed by the captain, indicated a climb speed of 400 mph (TAS) to 31 000 ft, the selected cruising altitude, where a cruising speed of 467 mph would be maintained. The check points along the route and the estimated times of arrival (ETAs) were listed as:- Delta 1403, North Reef 1420, Tourane 1445, Ubol 1513 and Bangkok 1555. During the flight the position reports and ETAs given by the aircraft coincided with the flight plan estimates. At 1514 UA869 advised Bangkok ATC that the flight had crossed the Bangkok FIR boundary at 1508 and passed over Ubol non-directional beacon (NDB) at 1513 and requested to fly direct from Ubol NDB to Bangkok VOR. This request was granted by Bangkok ATC. At this time UA869 advised Bangkok ATC that the ETA for Bangkok VOR would be 1547. At 1527 the flight advised Bangkok ATC that it would be over the 100 mile perimeter at 1530. This was acknowledged by ATC, and the flight was instructed to contact Bangkok control on 118.9 Mc/s at the 100 mile perimeter. At 1529 UA869 reported it was at the 100 mile perimeter. At 1530 UA869 reported to Bangkok control that it was 90 miles out and requested descent clearance to a lower altitude. On receiving the flight's Bangkok VOR ETA at 1544, Bangkok control cleared the flight to descend to 4 000 ft on the Bangkok VOR radial of 073 degrees and to report when commencing descent from 31 000 ft. The flight was instructed to contact Bangkok approach control at 1539 hours on frequency 119.7 Mc/s. These instructions were acknowledged by UA869. At 1535 the flight was cleared to 3 000 ft and informed that the altimeter setting was 1007.8 mb. At 1540 UA869 transferred to the Bangkok approach control frequency 119.7 Mc/s. Immediately after this UA869 reported to approach control that it was descending from 13 000 ft and estimating Bangkok VOR at 1544. Approach control advised the flight to adjust the altimeter setting to 1007.8 mb and then cleared the flight to cross Bangkok VOR for final approach on runway 21R and report immediately on descending from 3 000 ft. The flight acknowledged the message, and stated the instructions would be followed commencing at 1541-1/2. At 1550 Bangkok approach control attempted to contact UA869 without success. A radar station working with USAF and the Royal Thai Tactical Air Command recorded UA869 on its screen at a point 94 miles distant at 1536 and at about 1544/45 the trace of UA869 vanished from the screen at a point about 55 miles distant on a bearing of 060°. On 20 July the Government search and rescue party located the wreckage of the aircraft in jungle on the side of a mountain 52 NM from Bangkok Airport on a bearing of 060°. The time of the accident was determined to be 1544/45.

1.2 Damage to aircraft

The aircraft was totally destroyed on impact.

1.3 Injuries to persons

All occupants of the aircraft, i.e. 8 crew and 18 passengers, lost their lives in the accident.

2. Facts ascertained by the Inquiry

2.1 Aircraft information

The validity of the Certificate of Airworthiness is not mentioned in the report, nor is it stated if the gross weight and centre of gravity were within the prescribed limits at the last take-off point.

2.2 Crew information

Not available.

2.3 Weather information

The weather conditions in the vicinity of Khao Yai mountain between 1500 and 1800 hours were: wind southwest 10 kt, visibility 4 miles, mostly cloudy with light to medium continuous rain.

2.4 Navigational Aids

The aircraft was fitted with Doppler, which was not in use, and twin VOR receivers. The ADFs on board were not being used at the time of the accident.

The non-directional beacons were in operation at Ubol and at Nakhon Ratchasima, which is located close to the route 100 miles from Bangkok. There are three non-directional beacons and a VOR station at Bangkok.

2.5 Communications

Communications were normal until 1542:30. At this time a noise was heard identical to that made when pressing the microphone switch. However, no communication was made. Further attempts to communicate with the aircraft were unsuccessful.

2.6 Aerodrome Installations

Information not available.

2.7 Fire

Some parts of the fuselage were burnt resulting from fire caused on impact and the rupturing of a fuel tank. The aircraft was using high octane fuel.

There was no indication of fire occurring prior to the accident or of use having been made of the fire protection system.

2.8 Wreckage

The aircraft was totally destroyed when it collided with the ground with all engines delivering nominally moderate power. Only the navigator's ADF tuning boxes were found, and these were not in use at the time. Adequate fuel remained in the three remaining fuel tanks.

3. Comments, findings and recommendations

3.1 Discussion of the evidence and conclusions

According to the position reports transmitted during the flight, UA869 had a ground speed of 455 mph between Tourane and Ubol non-directional beacon, a distance of 205 miles. With this ground speed as a basis, it was determined that at 1530 the flight should have been 137 miles from Bangkok VOR and not 90 miles as noted in the flight's position report at 1530. It was also determined that the normal ground speed for this aircraft is in the order of 365 mph during descent, and that as the aircraft commenced descent from 31 000 ft at 1530, the distance traversed up to the time of the accident at 1544 should have been 85 miles, which would place the aircraft at a point 52 miles from Bangkok VOR which coincides with the site of the accident. The possibility was also discussed that the pilot either did not use the navigational ground aid facility at Nakhon Ratchasima, located 100 miles from Bangkok and close to the route flown, or that if he did, he had been incorrect in his calculations of the distance travelled. It was noted that the flight had been instructed to approach the VOR station on the 073 radial and to maintain an altitude of 3 000 ft and that the bearing of the accident site from the VOR station, determined to be 055°, differed from this by 18°.

3.2 Probable causes

The principal cause of the accident was the pilot's action in commencing descent at 1530 hours when the aircraft was 137 miles and not 90 miles from the Bangkok VOR as reported to Bangkok Control, and the aircraft, therefore, collided with a mountain at a point 52 miles distant.

It is probable that the pilot-in-command did not actually pass over the points he reported to the Flight Control Units, but only estimated he had passed these points which resulted in grave errors of time and distance in his computations.

It is also probable that the pilot-in-command had been too self-confident so that his actions were not according to the fundamental principles of air navigation.

3.3 Recommendations

A pilot-in-command should take full advantage of all navigation aids available to him, both on the aircraft and on the ground, when navigating.

When calculating time and distance, a pilot-in-command should check and re-check the points over which the aircraft passes, particularly when approaching an airport of intended landing.

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