

No. 11

United Arab Airlines, de Havilland Comet 4C, SU-ALD, crashed into the sea
11 miles west of Santa Cruz Airport, Bombay, India, on 27 July 1963.
Report released by the Director of Civil Aviation, United Arab Republic.

1. Investigation1.1 History of the flight

Flight 869 was a scheduled international flight from Tokyo, Japan to Cairo, United Arab Republic via Hong Kong, Bangkok, Bombay and Bahrein. A crew change was effected at Bangkok. Based on the tape recordings of messages exchanged between the aircraft and Santa Cruz approach and radar control, the flight was reconstructed. It was uneventful until 2016 hours GMT when it reported arriving over the Santa Cruz VOR at 7 000 ft. It was cleared to descend to 4 000 ft over the VOR and was requested to report what type of approach would be carried out for landing on runway 09. The aircraft reported it would follow the ILS back beam procedure. It was advised by Santa Cruz approach that the back beam of the ILS was not flyable but that it could home on the 270° radial of the VOR. The aircraft agreed to do a VOR let-down for runway 09, and shortly thereafter reported it was leaving 7 000 ft outbound over the sea on the 272° radial of the VOR. At 2018 Santa Cruz radar, which was monitoring the flight, warned it that if it flew more than 6 or 7 miles west of the field it would run into very heavy turbulence. Shortly thereafter the flight requested permission to make a left-hand procedure turn instead of the normal right-hand turn. This was granted. At 2019 the flight commenced the procedure turn inbound. Santa Cruz radar advised the flight that it was then 6 miles west-northwest of the field. Flight 869 acknowledged this message and was not heard from again. During the turn in severe turbulence and heavy rain the pilot lost control of the aircraft. It was found later on that the aircraft had crashed into the sea 9 NM west of Madh Island at approximately 2020 hours.

1.2 Injuries to persons

Injuries	Crew	Passengers	Others
Fatal	8	55	
Non-Fatal			
None			

1.3 Damage to aircraft

The aircraft was completely destroyed.

1.4 Other damage

No damage was sustained by objects other than the aircraft.

1.5 Crew information

The pilot-in-command, age 47, held an airline transport pilot's licence which was valid until 24 October 1963. His instrument rating was also valid, and he had held a type rating for the Comet 4C since 19 March 1962.

His total flying experience on various types of aircraft amounted to 14 841 hours. As pilot-in-command, on Comet aircraft, he had flown 1 473 hours including 277 hours during the 90 days prior to the accident.

The co-pilot, age 28, also held a valid airline transport pilot's licence and an instrument rating. Since 6 July 1961 he had held a type rating for Comet 4C aircraft (Group II).

His total flying experience as co-pilot amounted to 5 463 hours including 475 hours on the Comet of which 30 hours were flown within the 90 days preceding the accident.

No further information regarding the other crew members was contained in the report.

1.6 Aircraft information

The aircraft's certificate of airworthiness was valid until 23 June 1964.

A certificate of maintenance was issued for the aircraft on 18 July 1963 and was valid for 125 hours or one month, whichever occurred first.

The maximum gross weight of the aircraft permitted for this flight was 73 000 kg. At the time of the accident the aircraft's gross weight was 54 450 kg.

According to the flight manual the centre of gravity limits are 15.5% to 29.5% of the mean aerodynamic chord. The centre of gravity at the commencement of flight was 16.5% MAC.

The type of fuel being used on the subject flight was not mentioned in the report.

1.7 Meteorological information

Moderate monsoon conditions prevailed over Bombay and its vicinity on the night of the accident. There were no cyclones or depressions affecting the area.

At 1951 hours the following weather conditions for Santa Cruz Airport were passed to the flight by the approach controller:

wind: 110°/10 kt; visibility: 3.5 km; weather conditions: rain;
clouds: 3/8 at 240 m, 3/8 at 270 m and 6/8 at 2 400 m;
temperature: 24°C; QNH: 1002.9 mb

A TU 104 aircraft, which was approaching the airport from the west half an hour before the Comet, reported severe turbulence in the vicinity of the airport. As the radar picture of the weather remained unchanged when the Comet arrived, the radar operator warned the crew of the Comet twice regarding the turbulence reported.

1.8 Aids to navigation

Aids available on the ground were:

NDB, VHF omnidirectional radio range, responder beacon, ILS with markers and locators, aerodrome light beacon and runway lighting

The airport authorities issued a Notam in March 1963 advising that the back beam of the ILS was not flyable.

The aircraft was equipped with the following:

radio compass, VOR, DME, ILS, Doppler, weather radar, and Smith flight system

1.9 Communications

The aircraft exchanged messages during the approach with Santa Cruz approach and radar control up until the time of the accident. All frequencies used were functioning properly.

1.10 Aerodrome and ground facilities

The aircraft was to land on runway 09 which was 10 500 ft long.

1.11 Flight recorders

No flight recorder information was included in the report.

1.12 Wreckage

The exact location of the main wreckage could not be determined. Its approximate location was estimated by the Indian Navy as 19°05,8'N 72°40.4'E, i.e. about 9 NM west of Madh Island. A dinghy and three bodies were found at this location. A few pieces of wreckage attached to the dinghy were also recovered and were identified as belonging to the Comet.

1.13 Fire

No traces of fire were found on the few pieces of wreckage which were recovered from the sea.

Witnesses in the crash area, who heard a loud noise coming from the direction of the sea, did not see any fire before or after the accident.

1.14 Survival aspects

Search and rescue operations were carried out by the Indian Navy. There were no signs of life in the accident area.

1.15 Tests and research

No information concerning tests was included in the report.

2. Analysis and conclusions

2.1 Analysis

It was not possible from examination of the few pieces of wreckage available to determine the aircraft's attitude just prior to impact. The condition of the recovered bodies indicated that the aircraft hit the water at a high speed. The partial disintegration of the aircraft was caused by the high inertia forces of impact. The possibility of a mid-air explosion was discarded because the wreckage and the victims were not scattered over a wide area.

Santa Cruz approach control instructed the pilot to report at 4 000 ft over the VOR. However, the pilot did not follow these instructions. Instead he began his west-bound leg of the let-down procedure over the sea from 7 000 ft.

At 2019 the Santa Cruz radar operator advised the flight that its position was 6 miles west-northwest of the airport. During the investigation the radar operator stated that he meant to say west-southwest and that actually the aircraft never was west-northwest of the airport. The radar operator also said that according to the flight's path on the radar screen, the right-hand turn was interrupted shortly after the pilot was advised that he was west-northwest of the airport, and a left-hand turn was begun. This may have been corrective action on the part of the pilot to conform to the information received from the radar operator. It appeared that while carrying out the turn in severe turbulence and heavy rain, the pilot lost control of the aircraft.

2.2 Conclusions

Findings

The pilot and co-pilot were properly certificated.

The aircraft's certificate of airworthiness and certificate of maintenance were valid at the time of the accident. The gross weight and centre of gravity of the aircraft were within the prescribed limits. No defects concerning the aircraft were reported or discovered during the investigation.

All ground installations at Santa Cruz were functioning normally at the time of the accident.

Severe turbulence was known to exist west of the airport, and the Santa Cruz radar operator warned the pilot of the subject aircraft about it on two occasions.

The pilot had intended to make an instrument approach to runway 09 using the back beam of the ILS. However, as the back beam was not flyable, he was advised that he could use the 270° radial of the VOR.

Although the pilot was instructed to report at 4 000 ft over the VOR he started the westbound leg of the let-down procedure over the sea from 7 000 ft.

At 2019 the radar operator advised the pilot that the aircraft was 6 miles west-northwest of the airport when in actual fact it was west-southwest.

Immediately thereafter a right-hand turn was started but was discontinued and was followed by a left-hand turn. During this turn in heavy rain and turbulence the pilot lost control of the aircraft, and it crashed into the sea.

Cause or
Probable cause(s)

The Committee was faced with difficulties during the course of the investigation due to the fact that neither the exact location of the wreckage could be fixed nor the wreckage salvaged. Moreover, the accident occurred suddenly with no airborne emergency reported and late at night over the sea in limited visibility. There were no eyewitnesses. However, in the presence of the facts available, it can be concluded that the accident was probably due to loss of control while turning in severe turbulence and heavy rain.

3. Recommendations

No recommendations were contained in the report.
