No. 8

Middle East Airlines Co., Viscount 754, OD-ADE, and Turkish Air Force, C-47, CBK 28, were involved in a mid-air collision over Ankara, Turkey, on 1 February 1963. Report, dated 30 April 1963, released by the Department of Civil Aviation, Ministry of Communications, Turkey.

(Comments by the State of Registry of the aircraft appear at the conclusion of the summary)

1. Investigation

1.1 History of the flights

Flight ME 265, the Viscount, was on a scheduled service from Nicosia, Cyprus to Esenboga Airport, Ankara, Turkey with a crew of 3 and 11 passengers. It called Esenboga Approach Control at 1304 hours GMT and advised that it was descending from flight level 185 to 105 and would be over the range at 1307. The controller asked the flight to report when it reached the Gölbasi beacon. It reported over the beacon at flight level 125 and continued its descent expecting to be over Ankara at 1307. At 1305 the controller told the flight it could descend to 6 500 ft and cleared it for a beacon approach. The landing was to be made on runway 03 with an altimeter setting of 1015.5 mb, and the aircraft was requested to report leaving flight level 105. The flight reported that it was going to descend to 6 500 ft and would call over the Ankara beacon. It was then leaving flight level 125 and would call when it reached 105. At 1307 hours the aircraft reported it was at flight level 100 and that it would be over the range in one minute and might have to descend in the holding pattern. It had not checked the Ankara NDB but would report when it did. By 1309 hours it was at 8 000 ft over the Ankara NDB and was continuing its descent to flight level 65. It was to call again over the NDB when inbound. From 1313 hours onward the controller called the aircraft several times without success.

The C-47 departed Etimesgut Airport with three crew members aboard at 1122 hours GMT for an instrument training flight in the southeast region of the Gölbasi beacon. The duration of the flight was planned for 1 hour 30 minutes. In this type of flight the student pilot is normally seated in the left-hand seat, an orange plexiglass panel is placed in front of him on the left half of the windshield, and he wears dark blue glasses. The instructor is in the right-hand seat and is able to maintain a lookout. The training manoeuvres had been completed, and the aircraft was returning to Etimesgut flying under visual flight rules.

The two aircraft collided over the city of Ankara while flying below 7 000 ft in clear weather conditions. The accident occurred between 1312 and 1314 hours.

1.2 Injuries to persons

Injuries	Crew		Passengers	Others
Fatal	Viscount	C-47	Viscount	87
	3	3	11	
Non-Fatal				50
None				

1.3 Damage to aircraft

Both the Viscount and the C-47 were destroyed.

1.4 Other damage

The falling wreckage of the two aircraft damaged various buildings and houses in Ankara.

1.5 Crew information

Viscount

The pilot-in-command, age 29, held an airline transport pilot's licence which was valid until 30 May 1963. He qualified as a pilot-in-command on Viscount aircraft in August 1962 and had flown a total of 2 925 hours on this aircraft type.

The co-pilot, age 38, had a commercial pilot's licence which was valid until 17 May 1963. He became a co-pilot in June 1960 and had flown a total of 4 200 hours on Viscount aircraft.

Their medical examinations and flight checks had been carried out as required.

No information appeared in the report concerning the hostess.

C-47

The instrument flight instructor, age 33, qualified as a pilot in May 1955 and had a total of 1 452 hours experience on C-47 aircraft.

The student pilot, age 22, became a pilot in July 1962. He had flown 36 hours on the C-47 which included 9 hours and 15 minutes on instruments.

No information was provided in the report regarding the third crew member, a radio operator.

1.6 Aircraft information

Viscount

The aircraft had a certificate of airworthiness valid until 8 February 1963 and had been maintained in accordance with an approved maintenance programme.

The weight of the aircraft and its centre of gravity were within the allowable limits.

C-47

Since its construction the aircraft had flown 2 340 hours and 40 minutes.

The aircraft was airworthy at the time of the accident and had been maintained in accordance with the current regulations and maintenance programmes. The last periodic maintenance was carried out on the aircraft on 3 September 1962. This check was valid until 3 February 1963.

It was carrying no cargo.

The types of fuel being used by the two aircraft were not stated in the report.

1.7 Meteorological information

At 1300 hours the weather conditions at Esenboga and Etimesgut were as follows:

Esenboga

ground wind: 270°/03 kt; visibility: 10 km; hazy; cloud: 4/8 Cu Sc 3 000 ft; QNH: 1015.5 mb; QFE: 29.99 inches; temperature: 5°C.

Etimesgut

ground wind: 210°/10 kt; visibility: 20 km; 5/8 overcast; cloud: 3/8 Cu 3 000 ft, 2/8 Sc 4 000 ft; QFF: 29.98 inches.

At 1320 hours, immediately following the accident, the General Directorate of Meteorology released information on the Ankara weather conditions which included the following:

8 000 ft asl	-	cloud 2/8 stratocumulus
11 000 ft asl	-	cloud 2/8 altocumulus
visibility	-	20 km
wind	-	240°/10 kt

The winds and temperatures at various altitudes were:

5 000 ft	-	240°/11 kt, - 1°C
6 000 ft	-	240°/17 kt, - 5°C
7 000 ft	-	240°/17 kt, - 8°C
8 000 ft	-	240°/17 kt, - 11°C

All the eyewitnesses, who saw the aircraft before the collision occurred and those who saw the pieces fall after the collision took place, said that at that time the weather was cloudless, clear and sunny.

The pilot-in-command of a Turkish Airlines Fokker F-27 (Flight No. 511) which flew over the City of Ankara at 6 500 ft following the accident said that there were no clouds at that altitude. However, at 9 000 and 10 000 ft the cloud cover was approximately 2/8, visibility was about 20 km, and there was sunshine.

Two instructor-pilots of two C-47 (military) aircraft which were over Ankara at 1250 and 1330 hours respectively reported no clouds over Ankara.

However, the crew of an American C-130 aircraft reported that over the Ankara radio beacon at 1322 hours there were approximately 6/10 scattered clouds at 5 000 ft, and the visibility was 5 miles.

1.8 Aids to navigation

All the navigation aids on the ground were operational and functioning properly. There was a non-directional radio beacon at Ankara.

1.9 Communications

The Viscount aircraft was in contact with Approach Control at Esenboga Airport, Ankara up until approximately 1309 hours. The pilot's radiocommunications did not conform to the standard international conversation procedures. The controller tried several times to contact the aircraft from 1313 hours onwards but did not receive any reply.

Communications carried out by the C-47 aircraft were not mentioned.

1.10 Aerodrome and ground facilities

Not relevant to this accident.

1.11 Flight recorders

No flight recorder information appeared in the report.

1.12 Wreckage

The wreckage of the Viscount was taken to Esenboga Airport and that of the C-47 was taken to Etimesgut Airport.

Viscount

When the main part of the wreckage struck the ground, fire broke out and caused considerable damage. This made identification of the aircraft parts more difficult. The flaps were at 32°, and the landing gear was down and locked. The engines and propeller blades were severely damaged, but the manner in which the blades were twisted indicated there was power on the engines at the time of the in-flight collision. The tips of the blades of No. 3 propeller had broken off. There were vertical scratches on the paint and skin covering of the starboard side of the fuselage. The front upper part of the cockpit was found without any traces of fire on it. However, the bottom part had been completely destroyed. The fact that the nose landing gear was found far away from the main part of the wreckage and that in the same area the starboard door of the nose landing gear was found crushed indicated that the aircraft had hit something with the bottom right-hand side of its nose.

C-47

The tail unit containing the fin and rudder had been cut off from the fuselage near the water closet window. The pieces from the horizontal stabilizer on the starboard side were found, but no pieces from the horizontal stabilizer on the port side were recovered. Pieces of propeller blades were found in the tail unit. It was subsequently determined that they belonged to propeller No. 3 of the Viscount. Upward traces of paint and metal scratches were found on the skin covering in the vicinity of the door on the port side of the fuselage and extending forward from the door.

1.13 Fire

The fire which broke out where the C-47 fell was extinguished immediately.

Fire also broke out in some of the areas where the Viscount fell and caused substantial damage because of the large quantity of fuel which was being carried. However, the fire was successfully brought under control.

1.14 Survival aspects

The rescue procedures were performed rapidly and satisfactorily.

1.15 Tests and research

A report released by the Faculty of Science, University of Ankara, established that the paint traces on the C-47 were made by the Viscount.

2. Analysis and conclusions

2.1 Analysis

Examination of the scratches on the wreckage revealed that the aircraft collided at a 40° angle. Since the flaps and landing gear of the C-47 were in the retracted position, and the aircraft was descending for approach at the time of the accident, its speed was estimated as being about 120 mph. Because the landing gear of the Viscount was down and locked, and the flaps were found at 32°, the speed of the aircraft was estimated to be about 136 kt. Calculations were made of the flight paths of the various parts of the aircraft, taking into account these speeds and the wind drift. The headings of the Viscount and the C-47 shortly before the accident were determined to be approximately 283° and 243° respectively. The probable position of the collision point over Ankara was also determined. The Viscount should not have been on this heading at the point of collision. The altitude at which the collision occurred was estimated to be under 7 000 ft.

Based on the above it was determined that the in-flight collision had occurred as follows:

The Viscount, cruising on a heading of 283°, collided with the C-47 which was flying on a heading of 243° towards Etimesgut Airport. The lower right-hand side of the Viscount's nose and the starboard wing struck the C-47 from behind at a 40° angle in the door area on its port side. Propeller No. 3 also struck the C-47's left horizontal stabilizer, cutting it off. The blade ends broke off and remained with the tail unit of the C-47 near the base of the left horizontal stabilizer. The blade of propeller No. 4 cut the underside of the tip of the right horizontal stabilizer. Both aircraft flew together for a very short time then separated. The tail unit of the C-47 having been cut off, the C-47 fell vertically immediately thereafter. Prior to being cut off, the left horizontal stabilizer of the C-47 damaged the starboard side skin covering of the Viscount in the vicinity of the passenger cabin windows. This piece of skin covering broke off, and some of the passengers fell out through this hole. The Viscount flew a very short while following the separation of the two aircraft, then nosed down and fell.

2.2 Conclusions

Findings

Both aircraft had valid certificates of airworthiness and had been properly maintained. It was not possible to determine whether there was anything abnormal about the Viscount's flight prior to the collision.

The crew of both aircraft were properly certificated.

The manner of the flight performed by the Viscount aircraft indicates that the flight was not being carried out under IMC conditions.

The Viscount pilot made an estimation error of two minutes on the distance between Gölbasi and the Ankara NDB.

His radiocommunications did not conform to the standard international conversation procedures.

The C-47 was returning to Etimesgut Airport under visual flight rules (VFR) following an instrument training flight.

These training flights are scheduled to be carried out below 7 000 ft with the trainee-pilot behind blind flight panels and the instructor-pilot sitting so as to be able to see outside thoroughly. The flights normally last for 1 hour and 30 minutes, however, the instructor is authorized to extend this period if he deems it necessary.

The C-47 was subjected to an impact from the port side rear at an angle of 40° and from the bottom to the top upwards at an angle of approximately 5 to 10°. The Viscount's flaps were set at 32° down, and the gear was down and locked. The aircraft collided over the City of Ankara at an altitude less than 7 000 ft.

Cause or
Probable cause(s)

The Viscount aircraft had an IFR flight plan but was cruising under VFR conditions when it hit, with the lower side of its nose and with its starboard wing, the C-47 aircraft of the Turkish Air Force between the door on the port side of the fuselage and the tail group at an angle of forty degrees from the left rear and at an angle of approximately five to ten degrees upwards. It cut off, with its starboard side inner (No. 3) propeller, the port side horizontal stabilizer of the C-47 aircraft. The pilots of the Viscount aircraft did not see the C-47 aircraft cruising below 7 000 ft on their right-hand side forward, and the Viscount, having a higher speed, caught up with the C-47 from the left rear. At the last moment the Viscount pilots saw the C-47 and tried to avoid the collision by pulling up, but they did not succeed.

3. Recommendations

No recommendations were made in the report.

ICAO Ref: AR/804

COMMENTS BY THE STATE OF REGISTRY

The Directorate of Civil Aviation, Lebanon, having studied the report prepared by the Turkish Commission of Inquiry and having perused the supporting documents and the details appearing therein, has made the following comments:

"1) This Directorate had delegated a number of experts and specialists to attend the meetings of the Committee of Investigation. In the course of discussions, these experts made several important comments, but the Committee did not take their opinions into consideration. Our Representatives expressed reservations in writing in respect of the considerations outlined in the report and the conclusion reached by the Investigation Committee."

"2) The Turkish Investigation Committee did not take into consideration the presence of a military zone for flight training which extends within the holding and approach pattern allotted to civil aircraft without any co-ordination or direct contact between the military and civil control units."

"3) A contradiction exists between the information contained in the report about the weather conditions and the meteorological reports. The latter are lacking in accuracy and clarity and are thus inadequate to permit reaching the conclusions detailed in the report."

"4) The Committee's report contains no evidence to establish that the Turkish aircraft was flying in accordance with the visual flight rules. The report also does not contain any information in respect of the instructions given to the military aircraft; furthermore, there is considerable deficiency in the information provided about the flight of the military aircraft."

"5) The conclusions of the Investigation Committee do not seem to be in conformity with the International Laws prescribed under the technical annexes to the International Civil Aviation Convention; for example, the laws to which the report refers as a basis for the determination of responsibilities and the ascription of errors apply to aircraft whilst cruising on routes and not to aircraft flying in the holding and approach pattern."

"6) The report clearly shows that the Investigation Committee did not take into consideration all the important elements which are necessary for determining the detailed circumstances and causes of the accident in an objective and complete manner."

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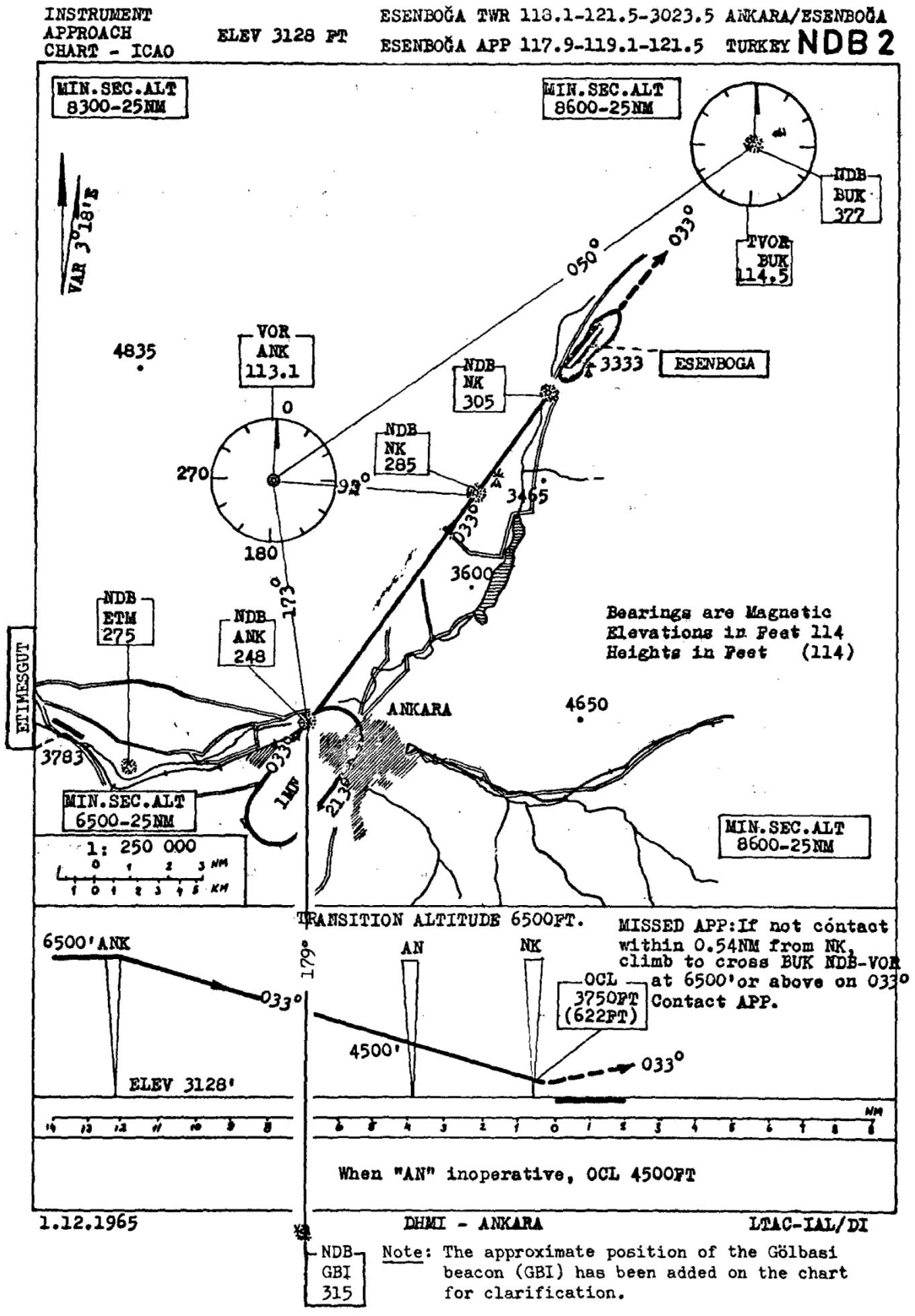
INSTRUMENT APPROACH CHART - ICAO
ELEV 3128 FT
ESENBOĞA TWR 118.1-121.5-3023.5 ANKARA/ESENBOĞA
ESENBOĞA APP 117.9-119.1-121.5 TURKEY
NDB 2
MIN.SEC.ALT 8300-25NM
MIN.SEC.ALT 8600-25NM
VAR 3°18'E
NDB BUK 372
TVOR BUK 114.5
050°
033°
4835
VOR ANK 113.1
NDB NK 305
3333
ESENBOGA
NDB NK 285
270
92°
3465
330°
180
173°
3600
NDB ETM 275
NDB ANK 248
ETIMESGUT
Bearings are Magnetic
Elevations in Feet 114
Heights in Feet (114)
ANKARA
4650
3783
033°
LMM
213°
MIN.SEC.ALT 6500-25NM
MIN.SEC.ALT 8600-25NM
1: 250 000
TRANSITION ALTITUDE 6500FT.
MISSED APP:If not contact within 0.54NM from NK, climb to cross BUK NDB-VOR at 6500'or above on 033° Contact APP.
6500'ANK
033°
ELEV 3128'
179°
AN
NK
OCL 3750FT (622FT)
4500'
033°
When "AN" inoperative, OCL 4500FT
1.12.1965
DHMI - ANKARA
LTAC-IAL/DI
NDB GBI 315
Note: The approximate position of the Gölbasi beacon (GBI) has been added on the chart for clarification.

FIGURE 1