



AIB Bulletin

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AIB Bulletin No.14	Ref: CAV/ACC/14/06	Category: 1.2	
Aircraft Type:	Cessna 310R	Reg. 5H-TZA	Serial No. 310R-1333
No. & type of Engines:	Two Continental IO-520 MB		
Year of Manufacture:	1978		
Date and Time (UTC):	16 December 2006 at 0354 hours		
Location:	Mbeya Airport, S.W. Tanzania (08 54.87S 33 27.43E)		
Type of Flight:	Air charter		
Persons on Board:	Crew -1	Passengers - 5	
Injuries:	Crew -1 Serious	Passengers – 3 Fatal, 2 Serious	
Nature of Damage:	Aircraft completely destroyed by impact and fire		
Commander's Licence:	CPL		
Commander's Age:	59 years		
Commander's Experience:	7400 hours of which 2445 were on the type		
Information Source:	Telephone call from the Mbeya Airport Control Tower		

ALL TIMES UTC

History of the Flight

The aircraft was taking off from Mbeya for a VFR flight to Dar es Salaam. It was carrying one pilot and five passengers. The fuel endurance was four hours. The pilot had lined on runway 13 for take off but, because of the sun glare at the material time, he decided to use runway 31. He also chose to initiate his take off from about 200 metres beyond the threshold of the runway 31 because he was not certain of the condition of the runway behind that position.

The pilot chose to apply full power on brakes and leaned the mixtures before initiating the take off roll. As the aircraft rolled for take off the pilot reported to have felt acceleration/deceleration effects caused by undulations and wetness of the runway. According to the pilot, the target rotation speed was 105kt. However, he

had to rotate at around 96kt when it became imminent that the remaining runway length was not enough to stop the aircraft. Shortly after take off the pilot felt a complete lack of acceleration and had to lower the nose in order to increase airspeed.

As he did so, the aircraft collided with a roof of a house located about 500 metres beyond the threshold of runway 13. The landing gear and the tail plane hit the top end of the wall of the house and the roof at about 5 metres above the ground. The aircraft subsequently collided with 3 more houses and an electric pole with live cables and broke up. The outboard portions of the left and right wings together with the main tanks separated from the aircraft and caught fire. They were completely destroyed by the fire. Both engines also broke-off the wings and one of them caught fire. One of the houses was also burnt. The main wreckage settled close to a road between two rows of houses.

Residents of the area extricated the occupants from the wreckage and fought the fire. Mbeya airport had no fire tender. A fire engine from the town arrived at the accident site after 20 minutes.

One passenger died on the spot, another died one day later and the third died after seven days. The pilot and two passengers sustained serious injuries.

The weather

The weather at the time of the accident was described as fine. The temperature was 17 degrees Centigrade, the wind was calm. There was a sun glare on runway 13 as the sun was then rising from the east (Time was 0654 am). The QNH was 1021.6hPa and QFE 836hPa.

Aircraft information

The aircraft, a Cessna 310R Serial number 1333 was manufactured by the Cessna aircraft company at Wichita Kansas, USA in 1978. It arrived in Tanzania in 1979 and was registered in the name of Tanzanian Air Services, P.O. Box 364 Dar es Salaam. A Certificate of Registration No. 254 was issued on 24 September 1979. A Certificate of Airworthiness No. 207 was issued on 10 October 1979 to expire one year later. It has since been kept current by periodic renewals. By the time of the accident it was valid until 8 September 2007.

The exact weight of the aircraft at the time of take off has so far not been established. Estimation for the aircraft take off weight was made as follows:

5H-TZA was last weighed on 9 July 2002. Its empty weight was found to be 3,900lb. There was no load sheet prepared for the flight. The passengers were not weighed before boarding. The baggage was also not weighed. The standard weights of passengers as given in the Tanzania Air Navigation Regulations 2003 are 80kg (176lb) for men and 70kg (154lb) for women. The aircraft had a fuel endurance of four hours which was estimated at 900lb. The aircraft was also loaded with personal baggage as well as some quantities of rice, meat, beans and potatoes which were estimated by the pilot at 100kg (220lb).

The estimate for the weight of the aircraft at the time of take off is given below:

Aircraft empty weight	3,900lb
Fuel	900lb
Pilot	168lb
Passengers (1 female)	154lb
Passengers (4 male)	704lb
Baggage	220lb
Take off weight (estimated)	6,046lb

Mbeya airport

Mbeya airport, elevation 5600 feet, has one runway 13/31 which is 1500 metres long. The surface is grass and dirt. The runway is rough and has many foot paths used by pedestrians and animals that frequently cross the runway at different points.

There is a grass field and flat land beyond the end of runway 13. However, there are buildings and high ground along the extended centre line of runway 31.

Further work

Further investigations into the circumstances leading to the accident are continuing. These include sending the aircraft engines and propellers recovered from the crash site to the United States National Transportation Safety Board (NTSB) Laboratory for further examination; and the GPS as well as the Altitude Reporter for memory readout.