

MINISTRY OF COMMUNICATIONS AND WORKS

ACCIDENT INVESTIGATION BRANCH

CIVIL AIRCRAFT ACCIDENT NO. CAV/ACC/7/90

REPORT ON THE ACCIDENT TO CESSNA 182 AIRCRAFT REGISTRATION 5H-SNP
WHICH OCCURED ON 12 APRIL 1990 AT MSEMBE AIRSTRIP, RUAHA NATIONAL
PARK, IRINGA REGION, TANZANIA (07°43'S' 34°56'E')

ACCIDENTS INVESTIGATION BRANCH

AIRCRAFT ACCIDENT REPORT NO. CAV/ACC/7/90

Aircraft Type : Cessna 182F

Nationality and
Registration Marks : 5H-SNP

Engines : One Continental 10-520-D

Registered Owner : Tanzania National Parks
P.O. Box 1334 Arusha
Tanzania

Operator : Same as registered owner

Pilot : One-Uninjured

Passengers : One - Uninjured

Place of Accident : Msembe airstrip, Ruaha
National Park, Iringa Region
Tanzania
(07°43'S, 34°56'E)

Date : 12th April, 1990

Time : 1020 Hours

All times in this report are UTC

Synopsis

The aircraft was approaching runway 11 of Msembe airstrip. Shortly before flare was initiated the pilot saw a giraffe which was running across the runway. He applied power and banked to the left in order to avoid hitting its neck. However, the right wing tip and the tailplane hit the giraffe. The aircraft touched down on the runway, veered to the left and after crossing a storm drain it came to rest on high ground about 10 metres left of the edge of the runway. The aircraft sustained damage to the right wing tip, the right horizontal stabilizer and its elevator.

1. Factual information

1.1 History of flight

The aircraft took off from Iringa on a flight to Msembe. It was carrying one pilot and one passenger. The flight to Msembe was uneventful. 5H-SNP arrived at Msembe National Park at about 1020 hours (1.20p.m.local time). The pilot said that he saw a herd of giraffes standing in the middle of the runway. He made a circuit around the park and during this time a vehicle was driven along the runway to disperse the animals. The herd moved to the north of the runway while one of them was seen (by the pilot) moving to the south of the runway. When the runway was clear the pilot made his approach on runway 11 with 40° flap. He said that he could not see the lone giraffe on his approach because it was being obscured by trees which are located south of the threshold of runway 11.

Shortly before flare the pilot saw the giraffe running across the runway from south to north. He immediately applied power and banked left in order to fly clear of the giraffe but the right wing tip bit the animal. The right horizontal stabilizer and its elevator also collided with the giraffe and were damaged. The aircraft touched down two metres to the left of the runway centre line and veered to the left. While crossing a storm drain at the edge of the runway the propeller impacted soft ground. It continued to roll uphill in tall grass on a track which made an angle of about 30° to the runway centre line. It came to rest on a raised ground about 10 metres

to the left of the edge of the runway and 1300 feet from the runway threshold. There were no injuries but the aircraft sustained damage to the right wing tip, the tail plane, the elevator and the propeller. The accident giraffe ran away and was believed to have re-joined the herd.

1.2 Injuries to persons

INJURIES	CREW	PASSENGERS	OTHERS
FATAL	-	-	-
SERIOUS	-	-	-
NONE	1	1	

1.3 Damage to aircraft

The aircraft sustained substantial damage to the propeller the right wing tip, the right horizontal stabilizer and its elevator.

1.4 Other damage

Not applicable

1.5 Personnel information

The pilot was born at Arusha, Tanzania in 1946. He held a Private Pilot's Licence No. H-460 which was granted on 28th October, 1980. It had since been kept current through periodic renewals. By the time of the accident his licence was valid till 26th February, 1991. He was qualified to fly all single engined aeroplanes under 12,500 lb maximum total weight.

He also held a Radio Operations No. H-329 granted on 28th October 1980 whose validity ran in line with the PPL.

By the time of the accident he had logged a total of 1512:05 hours of which 1253:40 were on the type.

1.6 Aircraft information

The aircraft, a Cessna C182F serial No. 54567 and powered by one Continental 0-470 engine was manufactured by the Cessna Aircraft Company at Wichita, Kansas, U.S.A in 1963.

It was first registered in Tanzania in 1981 under the ownership of Messrs Tanzania National Parks. A certificate No. 266 was granted. It has not changed ownership since.

The aircraft arrived in Tanzania with validation C of A No. 282 granted by Kenya DCA. A local C of A of No. 220 was granted on 29th April, 1981 to expire a year later. By the time of the accident the C of A was valid till 25th October, 1990. The aircraft was being operated under "Private Category".

1.6.1 Loading

The aircraft of C of G was within the allowed limits.

1.7 Meteorological information

It had been a sunny day. The weather had no bearing on the accident.

1.8 Communications

There is no Control Tower at Msembe. When an aircraft arrives and flies overhead Msembe lodge (which is near the airstrip) the game wardens dispatch a vehicle to disperse wildlife out of the runway.

1.9 Aerodrome and ground facilities

Msembe airstrip, elevation 2500 feet (760m), has a single grass runway which is 4260 feet (1300m) long and 115 feet (35m) wide. There is short grass on its rough surface. During rainy seasons there is tall grass on areas surrounding the runway. The houses are about 100 metres North East of runway 22. Some animals, notably giraffes and zebras, dislike tall grass and they prefer short grass of the type found on the runway.

1.10 Flight recorder

Not required by regulations. None fitted.

1.11 Examination of the aircraft and accident site

The damage to the aircraft was confined to the propeller, the right wing and the tailplane. The propeller, having scraped soft ground was slightly bent. The right wing tip and its light was torn off. The right horizontal stabilizer and the right elevator were also damaged when they hit the giraffe.

1.12 Medical and pathological information

Not applicable.

1.13 Fire

There was no fire.

1.14 Survival aspects

The evasive action taken by the pilot nearly succeeded. Only the tips of the right wing and the tailplane hit the animal.

1.15 Tests and research

The presence of wildlife around airports poses potential hazard to aircraft movements. This is particularly true for National Parks where there are thousands of animals. Such animals have learnt to live peacefully with man and his vehicles. As for movements within National Park boundaries, animals have a right of way.

A number of suggestions have been put forward for promoting safety among animals and aircraft. The first suggestion was to fence the area surrounding the runway. This would prevent the animals from crossing or grazing on the airport premises. This has been tried before. It was discovered that some animals would enter the fenced area once the gate had been opened to let in vehicles. When they got inside it was extremely difficult to get them out. Another problem was that some predatory animals, notably the lions, take advantage of the fence barrier to corner their prey. They subsequently develop a habit of hiding near the fence.

2. Analysis

The purpose of this analysis is to evaluate the procedures and regulations governing the movement of vehicles in Tanzania National Parks in relation to the movements of animals.

For vehicles using the same roads as animals, the animals have a right of way. This applies (more specifically) to elephants which, sometimes, tend to remain standing still on roads even when powered vehicles are in close proximity. Other species would normally run away.

During rainy seasons many animals prefer to graze on short grass such as that found on the runway. When aircraft fly overhead Msembe lodge the game wardens drive a vehicle along the runway so that the animals run away.

This was actually done when 5H-SNP arrived at the airstrip and a herd of giraffes escaped to the north of the runway. One giraffe, however, escaped in the opposite direction. The aircraft collided with this giraffe when it was running across the runway possibly in order to join the herd on the opposite side.

One factor which had a bearing on this accident was the absence of ground to air communications. While the game warden's vehicle was in sight of the accident giraffe, the pilot was obscured by a nearby forest. The vehicle should have been able to pass information to the aircraft on the radio if this were available.

The pilot reported to have applied power when the giraffe was sighted several metres in front of him. He also banked to the left in an effort to leap frog the beast. The aircraft responded but did not gain sufficient altitude in the short time available. The giraffe was hit in the head. It is considered that the aircraft did not respond fast to the pilot's inputs because of the full flaps (40 degrees) which he had selected for landing.

3. Conclusions

(a) *Findings*

1. The pilot was properly licenced
2. The aircraft documents were in order
3. The aircraft hit a giraffe shortly before touch down at Msembe airstrip.

(b) *Cause*

The accident was caused by a giraffe running across the runway when 5H-SNP was about to touch down. The absence of air to ground communications and the presence of a bush at the runway threshold were contributory factors.

4. Safety Recommendations

1. In view of the communications factor which was significant in this accident it is recommended that air to ground communications facilities be installed in the airstrips located in National Parks.
2. The forest located near the runway 11 threshold should be cleared in order to allow unlimited visibility for approaching aircraft.

J. Nyamwihura
Inspector of Accidents

Accident Investigation Branch
Ministry of Communications and Transport