

MINISTRY OF COMMUNICATIONS AND WORKS

ACCIDENT INVESTIGATION BRANCH

CIVIL AIRCRAFT ACCIDENT NO. ACC/11/90

REPORT ON THE ACCIDENT TO BELL 206L HELICOPTER
AIRCRAFT REGISTRATION 5H-TPF WHICH OCCURRED
29 APRIL, 1990 AT NDANDA FOOTBAL GROUND, MASASI
DISTRICT, TANZANIA

AIRCRAFT ACCIDENT REPORT NO CAV/ACC/9/90

Aircraft Type : Bell 206L Helicopter

Nationality and Registration Marks : 5H-TPF

Engines : One Allison 250-C28B

Registered Owner : Tanzania Police Airwing

Operator : Same as Registered Owner

Pilot : One - Uninjured

Passengers : NIL

Others : One - Killed

Place of Accident : Ndanda Village, Masasi District,
Tanzania

Date : 29 April 1990

Time : 1340 hours

ALL TIMES IN THIS REPORT ARE UTC

SYNOPSIS

The aircraft was one of two helicopters on a VIP flight to a number of stations in Mtwara Region. It was carrying one pilot and five passengers. 5H-TPF landed at Ndanda football ground and the passengers disembarked, joining a reception committee party who were standing to the left of it.

The other helicopter, HB-XSH, landed 63 metres Southwest of 5H-TPF one minute later. A passenger from HB-XSH disembarked immediately and rushed to join passengers from 5H-TPF.

He was hit in the head by 5H-TPF's tail rotor as he tried to pass underneath its tail rotor. He was fatally injured. The helicopter was slightly damaged.

1. FACTUAL INFORMATION

1.1 History of the Flight

On 29 April 1990 two helicopters, 5H-TPF and HB-XSH left Mtwara Airport on a flight to visit areas which had been affected by floods in the Mtwara region. They were carrying a party of nine passengers including the President of the United Republic of Tanzania who was travelling on 5H-TPF. The other helicopter was carrying 4 passengers. There was only one pilot on each helicopter.

The two aircraft took off from Mtwara Airport at 0645 hours. They landed at Mpapula, Chekeleni and Chemchemi before they landed at Ndanda village football ground at 1040 hours. 5H-TPH was the first to land at Ndanda and HB-HSH landed one minute later. HB-XSH was parked 63 metres south west of 5H-TPF as shown in appendix 1.

Passengers from 5H-TPF were the first to disembark and they joined a reception party who were standing some distance east of 5H-TPF.

When HB-XSH landed, one passenger disembarked and rushed to join the passengers from 5H-TPF. While trying to go underneath the tail boom of 5H-TPF he was hit in the head by the tail rotor and fell on the ground. He was taken to a nearby hospital (Ndanda Hospital) where he died at 1103 hours. The helicopter was slightly damaged.

1.2 Injuries to Persons

INJURIES	CREW	PASSENGERS	OTHERS
Fatal	-	-	1
Serious	-	-	-
None	1	-	

1.3 Damage to Aircraft

The aircraft sustained minor damage to the tail rotor pitch rings.

1.4 Other Damages

There was no third party damage.

1.5 Flight Crew Information

The pilot was born at Same, Tanzania on 25 September 1944. He held a CPL No.HP-294(H) which was granted on 28 February 1987. This licence was kept current through periodic renewals. By the time of the accident the licence was valid up to 27 August 1990. He was qualified to fly Bell 206 in command.

He also held a Radio Operator's Licence No.H-16 granted on 30 January 1974 whose validity ran in line with the CPL. He was also on instructor (Asst) on helicopters.

As of 28 February 1990 he had the following experience:

In Command Day	-	3940.30 hours
In Command Night	-	1.20 hours
Co-pilot	-	189.25 hours
Co-pilot	-	1.00 hours

His experience on the type (Bell 206) was 3000 hours.

The pilot had no record of accident/incident before.

1.6 Aircraft Information

The aircraft, a Bell 206L-1 helicopter serial No. 45306 powered by one Allison 250-C 288 engine was manufactured by Bell Helicopters (Textron) USA in 1979. It was first registered in Tanzania on 29 December 1979 under the ownership of Police Airwing. A Certificate of Registration No. 259 was issued. It has not changed ownership ever since.

The aircraft came with an export Certificate of Airworthiness (C of A) No. E184204 granted by FAA(USA).

A local C of A No.213 was granted on 22 January 1980 and has since been kept current. By the time of the accident the C of A was valid till 27 July 1990. The aircraft was being operated under Private Category.

1.6.1 Loading and C of G Disposition

Not applicable.

1.7 Meteorological Information

It was a bright sunny day. The weather is not considered as a factor in this accident.

1.8 Communications

By the time of the accident both aircraft had landed but their engines were still running at idle power. The pilot of 5H-TPF said he was talking with the Mtwara Tower on the HF radio when he suddenly felt vibration similar to that caused by a gust. He switched to VHF where he heard HB-XSH advising him to shut down the engine because there was a person lying beneath the tail boom.

1.10 Flight Recorders

Not required by regulations. None fitted.

1.11 Examination of the Wreckage

The helicopter tail rotor and the boom were stained with blood. A ball joint on the tail rotor pitch ring was found damaged. No other damage was found.

1.12 Medical and Pathological Information

The death was attributed to the injuries sustained in the accident. There was no other medical evidence relevant to this accident.

1.13 Fire

There was no fire.

1.14 Survival Aspects

The accident occurred on a football ground near Ndanda hospital. The injured person, who had his skull punctured

by the helicopter tail rotor died shortly afterwards in Ndanda hospital. This was not a survivable accident.

1.15 Tests and Research

Not applicable.

2. ANALYSIS

The purpose of this analysis is to evaluate the relative positions of the two helicopters and the safety information which was available to the passengers.

5H-TPF was parked on a southerly heading on the eastern end of the football ground. This position allowed the passengers to disembark and proceed straight to the reception part which was waiting in the vicinity. HB-XSH was parked heading east 63 metres southwest of 5H-TPF. This position was to allow the passengers to disembark and join the reception partly without having to go round the back of any of the two helicopters.

Before disembarking at Ndanda, the passengers of XB-XSH were briefed by the pilot on the procedures for disembarking. In the briefing the passengers were warned not to go round the back. This briefing had also been made four times before when they landed at previous destinations.

A tail rotor warning is also displayed in the cabin and on the tail boom.

The injured person was the Presidential Press Secretary rushing to join a presidential entourage and its reception committee members. The geometry of the parking positions of the two aircrafts would indicate that the shortest route for the pressmen was one which allowed him to go in front of the two helicopters. The man was himself experienced in helicopter travel. He had been on helicopter flights as a passenger for several years. It is therefore not possible to ascertain the reason why the passenger chose to pass underneath the tail boom of 5H-TPF.

It is normal for passengers to disembark while the helicopter engine is still running. This is because

5

the machine lands under power. In order to avoid the effects of sudden cooling, the engine is left to run at idle power for two to three minutes after landing before it is shut down. Even when the engine is finally shut down, the two rotors continue to spin for a while till their inertia is overcome by air resistance and the gearing in the transmission.

In the normal parking attitude, the helicopter main rotor is 3.1 metres above the ground when running at idle. This height is well clear of any human being standing upright. The tail rotor tip however, is 1.1 metres above the ground which puts it within the reach of many human beings. For this reason the passengers and members of the general public within the reach of such helicopters are instructed not to go round the back of a helicopter.

Such instructions are to be found in writing inside the cabin and on the tail boom. For 5H-TPF there was a warning written in red on the tail boom. It read "HATARI", meaning danger.

The tail rotor was also painted silver and black (in form of stripes) so that it should be visible while it is rotating. When the helicopter is approached from the right as was the case in this accident, it is partially eclipsed by the fin.

The deceased was a Presidential Press Secretary who was flying on XB-XSH with other members of the press. The press was to cover the presidential visit of flood-stricken areas in Mtwara region. His Excellency the President of the United Republic of Tanzania was himself a passenger on 5H-TPF.

The deceased, a Presidential Press Secretary, was an experienced passenger on the Bell 206 helicopter. He had been a passenger on many flights before and was conversant with the procedures for going round the helicopter. The accident occurred simply because he was in a hurry to join the President who had arrived on 5H-TPF shortly before XB-XSH landed.

It is a protocol that the press aircraft normally lands before the presidential transport on such missions. 5H-XSH was, however, not part of the mission as such. The helicopter had arrived in the country to take part in rescue operations following floods in the southern region. She had been requested to ferry the presidential press to destinations visited by the president on that day. For this reason, the Commander could not be expected to be familiar with certain aspects of the protocol.

That the victim was an experienced helicopter passenger is not altogether surprising, in fact another passenger who was also an experienced passenger as well, was also following the deceased when he was stopped by someone else and alerted of the accident. Indeed the statistics available show that a good number of tail rotor strike accidents occur to experienced helicopter pilots who become complacent with the influence of time.

3. CONCLUSIONS

(a) Findings

1. The pilot was properly licenced to undertake the flight.
2. The aircraft documents were in order.
3. A person was struck in the head by the tail rotor while trying to go underneath the tail boom. He died shortly afterwards.

(b) Cause

The accident was caused by a person trying to pass underneath the rotating tail rotor of the helicopter.

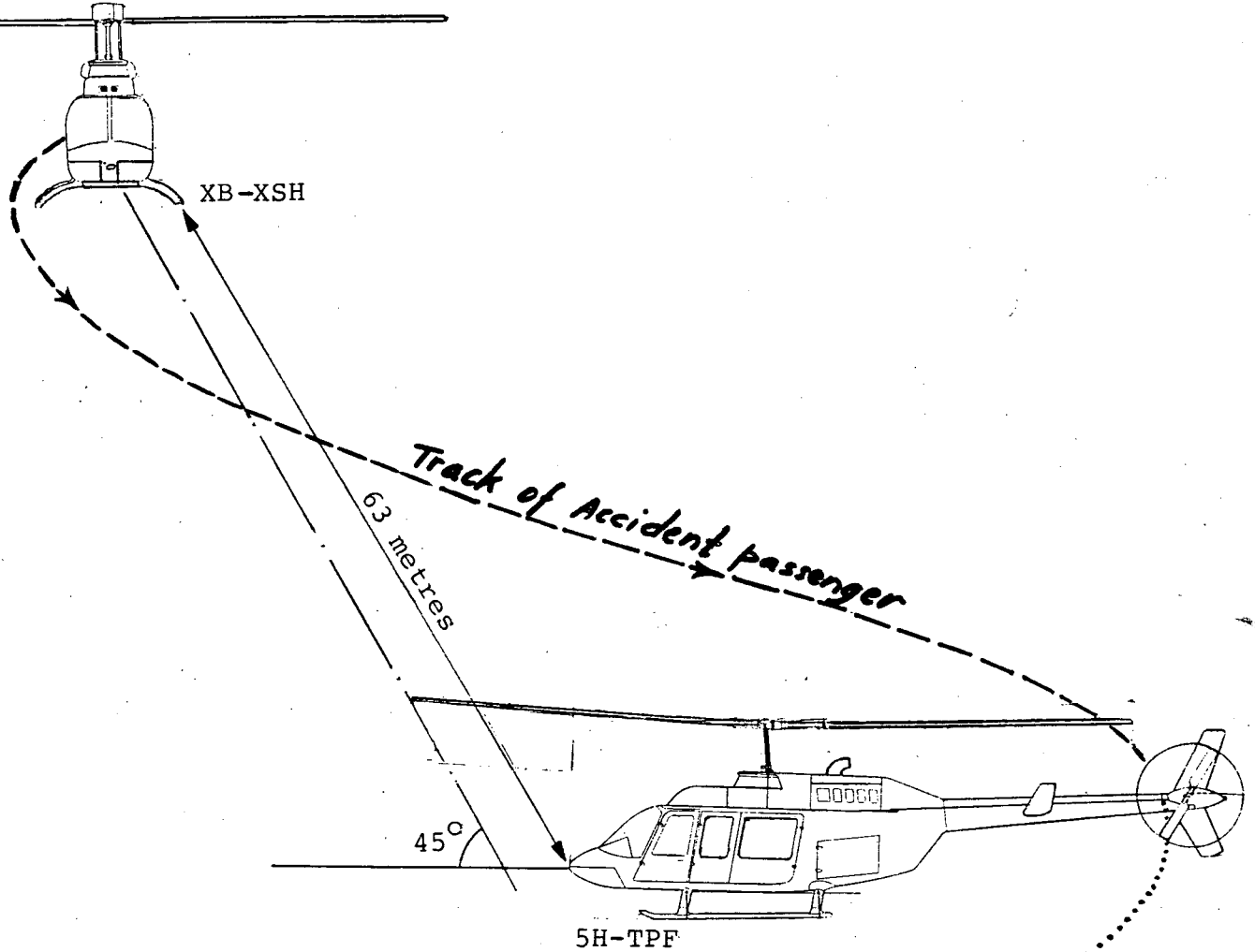
C. Nawa
CHIEF INSPECTOR OF ACCIDENT

4. SAFETY RECOMMENDATIONS

It is recommended that:

1. Pilots should adequately brief passengers on the dangers posed by helicopter rotors.
2. Helicopter pilots should feel free to exercise the option of preventing passengers from disembarking till all the rotors come to rest.

**TANZANIA POLICE AIRWING HELICOPTER 5H-TPF
ACCIDENT AT NDANDA on 29 APRIL 1990**



X X X X X X X X X X
X X X X X X X X X X

RECEPTION PARTY