

CAV/ACC/13/75

ACCIDENT INVESTIGATION BRANCH

CIVIL AIRCRAFT ACCIDENT

Report on the Accident to Cessna ~~PR~~150

Aircraft Registration Number 5H-MOX

which occurred on the 3rd May,

1975 at near Ngasurai Hills,

Northern Tanzania.

E A S T A F R I C A N C O M M U N I T Y

ACCIDENTS INVESTIGATION BRANCH

CIVIL ACCIDENT REPORT NO. CAV/ACC/13/75

AIRCRAFT: CESSNA ~~PRO 50~~ 5H-MOX  
ENGINE: LYCOMING O-320  
REGISTERED OWNER: MINISTRY OF AGRICULTURE, GAME DIVISION,  
P.O. BOX 1994, DAR ES SALAAM.  
OPERATORS: GAME DIVISION, TANZANIA.  
PILOT: B.N.N. MBANO.  
PASSENGER: ONE  
PLACE OF ACCIDENT: NGASURAI HILLS, NORTHERN TANZANIA.  
DATE & TIME: 3RD MAY, 1975, AT 0505 HOURS.  
ALL TIMES IN THIS REPORT ARE GMT.

---

SUMMARY:

The aircraft was commencing to take off from an old Game Division Airstrip. After approximately fifty yards the aircraft swung to the right and although the pilot tried to correct this the swing continued. To avoid hitting bushes, the pilot pulled the aircraft into the air and shortly afterwards retracted the flaps. The aircraft sunk on to the ground and overturned. The investigation showed that the aircraft never attained sufficient flying speed for sustained flight.

1. INVESTIGATION

1.1. History of the Flight:

The aircraft was engaged on duties on behalf of the Game Department, Tanzania. After spending the night at an old Game Division Airstrip to the East of Ngasurai Hills, the pilot carried out a pre-flight check on the morning of 3rd May, 1975, prior to taking off with one passenger.

The pilot states that the direction of take off was easterly into wind and that after covering approximately 50 metres, the aircraft started to swing to the right. He stated that he applied opposite rudder with no reponse, and as he was now heading towards some bush, he pulled the control column back in an attempt to get airborne, but as his speed was only 40 m.p.h., the aircraft only bounced. Shortly after this, he managed to get the aircraft into the air, but the right wing began to drop. The pilot then applied opposite stick and rudder - with no response - and then retracted the flaps. The aircraft continued to sink until it hit the ground and overturned.

1.2. Injuries to persons:

Nil.

1.3. Damage to aircraft:

The aircraft overturned on hitting the ground and came to rest inverted with the engine completely separated from the fuselage. The empennage, including the fin, were twisted off and remained right away up lying along the side of the fuselage in front of the main plane leading edge. The aircraft was destroyed.

1.4. Other damage:

Nil.

1.5. CREW INFORMATIONPilot:

Born nearly 32 years ago at Songea in Tanzania Mr. B.N.N Mbanu holds an East African Private Pilot's Licence No. H32 issued on 29-1-1973 to expire on 4-12-1974. It was subsequently renewed to expire on 11-11-1976. He also holds an East African R/T Licence No. H6 and is kept valid in line with the P.P.L. mentioned above.

Experience:

At the time of issuing the licence he claimed total flying experience of 56 hours broken down as follows:-

All day flying:	Pilot in command	14.10 hours
	Dual Instruction	42.10 hours

During his most recent application for renewal he claimed additional 151 hours accumulated during the immediate past one year.

1.6. AIRCRAFT INFORMATION

A Cessna 150 J Serial No. 15069319 powered by one Lycoming O-320 engine. The aircraft was manufactured by Cessna Aircraft Company, Wichita, Kansas, U.S.A. in 1968.

The aircraft arrived in East Africa in possession of F.A.A. Export Certificate of Airworthiness No. E 79860 dated 23-10-1968. and an East African Certificate of Airworthiness No. 136 was granted on 11-3-1965 to expire on 2-3-1970. This Certificate of Airworthiness has been kept current up to the present validity expiring on 25-3-1976.

Weight/Schedule:

This aircraft must be operated in accordance with the Cessna 150 J owner's manual as amended by D.O.Y.N. 150 H.P. Lycoming conversion approved under F.A.A. supplemental Type Certificate No. SA 572CE.

Categorfy:

Public Transport.

Registration and Ownership:

This aircraft whose initial marks were 5Y-AHV and later changed to 5H-MOX was initially registered in the name of Messrs. Safari Air Services P.O. Box 41951, Nairobi and later changed ownership to Ministry of Agriculture (Game Division) P.O. Box 1994, Dar es Salaam. who are still the current owners.

The weight of the aircraft at the time of the accident was calculated to be 1580 lbs. The centre of gravity was within the prescribed limits. The maximum permissible all up weight was 1600lbs.

1.7. METEOROLOGICAL INFORMATION

No meteorological forecast was available in the vicinity of the airstrip in question.

From witness reports, the weather was fine and clear with the wind blowing from an easterly direction. In his statement, the pilot remarked on the possibility of local patches of gusting hot air, but at the time of the accident, 0505 hours, it is unlikely that the local air temperatures would have been very high.

1.8. AIDS TO NAVIGATION

Not applicable.

1.9. COMMUNICATIONS

Not applicable.

1.10. AERODROME GROUND FACILITIES

The airstrip in use was an old one belonging to the Game Department of Tanzania. The surface was reported as being flat, hard, dry and sparsely covered with short grass.

1.11. FLIGHT RECORDER

Not required and none fitted.

1.12. WRECKAGE

The aircraft came to rest approximately 500 metres from the start of the take off run after it had struck the ground. The aircraft somersaulted and at the same time the empennage broke away from the fuselage. The engine fell out in the inverted position.

The fuselage and the mainplanes were inverted whilst the empennage was lying alongside the fuselage, the right way up, in front of the mainplane leading edge.

1.13. FIRE

There was no fire.

#### 1.14. SURVIVAL ASPECTS

The pilot and passenger were strapped in and sustained only minor bruises.

### 2. ANALYSIS AND CONCLUSIONS

#### 2.1. Analysis

The pilot had been carrying out flights over the previous three days, with students from the College of African Wildlife Management, to familiarize them with game conditions in the area. A total of some 10 hours (ten hours five minutes) were flown during this period and some 27 take offs and landings made from the airstrip where the accident occurred.

On the morning of the 3rd of May, 1975, the pilot states that he made a pre-flight inspection and also checked that the left fuel tank was nearly full and the right one approximately three quarters full. The pilot states he started the engine and taxied the aircraft to a point where the take off run was to begin. Subsequently, he ran the engine up found this to be satisfactory, made sure his passenger was strapped in and then commenced to take off.

The pilot then states that after approximately 50 metres, the aircraft began to swing to the right and he corrected this. However, after a further 40 metres, it again began to swing to the right and this time although he applied opposite rudder, there was apparently little response. As he was now heading for some bush and his speed was reaching 40 m.p.h., he pulled the control column back, but the aircraft only bounced and did not become airborne. He then proceeded to carry out various manoeuvres, including lifting the port wing over a bush, which however, resulted in the right wing touching the ground. Soon after this, the aircraft became temporarily airborne, but the starboard wing began to drop, and although he applied opposite stick and rudder, there was no response. The pilot then retracted the flaps and in the ensuing sink, the aircraft struck the ground and overturned.

The pilot mentioned that he considered the possibility of gusts of hot turbulent air which may have caused the aircraft to swing. The location of this Game Strip is approximately 2,900 feet above sea level and at 0505 hours, it is unlikely that the outside air temperature would have been sufficiently high to sustain such phenomena. However, taking into consideration the local terrain the possibility of an unpredicted wind shear cannot be discounted.

It is evident, from the pilot's statement that the aircraft became airborne as a result of the ground cushion. Once however, it ascended beyond this, and due to the fact that it has now turned cross wind, flight could no longer be sustained. The situation was aggravated by the fact that the pilot retracted the flaps at the most crucial stage.

### 2.1.2. OBSERVATIONS

1. The pilot appeared to have lost control of the aircraft during the early part of the take off run.
2. In endeavouring to regain control, the pilot ran out of space available, and accordingly tried to pull the aircraft into the air before the correct flying speed had been attained.
3. There was no question of any defect being reported in respect of engine power, but it is noted that the aircraft was almost up to its maximum all up weight.

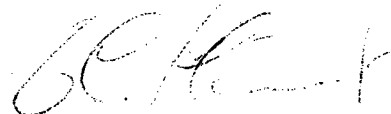
### 2.2. CONCLUSIONS

#### (a) Findings

- (i) The aircraft had been properly maintained and its documentation was in order.
- (ii) The aircraft was below its maximum all up weight and the centre of gravity was within the prescribed limits.
- (iii) The pilot was properly licenced.
- (iv) There was no evidence of pre-crash failure or malfunction of the aircraft.
- (v) The aircraft developed a swing during take off which the pilot was unable to correct. The aircraft subsequently lost height due to a cross wind condition and also the fact that the pilot retracted the flaps.

#### (b) Causes

The aircraft became prematurely airborne during a swing whilst taking off, but could not sustain flying speed. Contributory factors were a possible wind sheer effect and the fact that the flaps were retracted as the aircraft started to sink.



D.C. Stewart  
CHIEF INSPECTOR OF ACCIDENTS