

ACCIDENT INVESTIGATION BRANCH

CIVIL AIRCRAFT ACCIDENT

Report on the accident to Cessna U206A,
Aircraft Registration 5Y-ACW which
occured on 9th December, 1967
on Mwanza Airfield, Tanzania.

East African Community,
Accident Investigation Branch,
P.O. Box 30163,
NAIROBI.

MARCH, 1968.

The Secretary General,

Sir,

I have the honour to submit my report into the circumstances of the accident to Cessna U206A, Aircraft Registration 5Y-ACW which occurred on 9th December, 1967 on Mwanza Airfield, Tanzania.

I have the honour to be,
Sir,
Your obedient Servant,



J.F. Dunlinson
DEPUTY CHIEF INSPECTOR OF ACCIDENTS

JFD/VPS

ACCIDENT REPORT
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CIVIL ACCIDENT REPORT NO. CAV/ACC/31/67

AIRCRAFT: Cessna U206A. 5Y-ACW
ENGINE: Continental 10-520A
REGISTERED OWNER : G.M. Swindlehurst, P.O. Box 3417, Nairobi.
OPERATOR: Safari Air Services, Caspair Ltd.,
P.O. Box 1951, Nairobi.
PILOT Amerjeet Singh Grewall - Uninjured
PLACE OF ACCIDENT: Mwanza Airfield, Tanzania.
DATE AND TIME 9th December, 1967 at 0758 hours.

ALL TIMES IN THIS REPORT ARE G.M.T.

SUMMARY

Whilst on a charter flight from Entebbe to Mwanza carrying five passengers the aircraft swung off the runway on landing at Mwanza and overturned. The aircraft was extensively damaged. No death or injuries occurred. There was no fire.

1 INVESTIGATION

1.1. History of the flight. The aircraft departed from Entebbe at 0622 and the flight was without incident prior to landing at Mwanza. On touch down at Mwanza at 0758 on Runway 12 with a wind of 180°/10 kts, the Aircraft swung to starboard, ran off the runway across a drainage ditch breaking off the nosewheel, turned tail over nose and came to rest inverted. The Airfield Safety Service vehicles arrived at the aircraft one minute after the accident and assisted the pilot and passengers to evacuate the aircraft. The aircraft was severely damaged. There were no deaths or injuries. Fire did not break out.

1.2 Injuries and persons.

Injuries	Crew	Passengers	Others
Fatal	-	-	-
Non-Fatal	-	-	-
None	1	5	

1.3. Damage to aircraft.

1.3.1. Power plant. Cowlings and port-cowl gill deformed. Propeller blades bent and damage to operating mechanism in hub.

1.3.2. Fuselage. Considerable distortion to middle portion of rear fuselage by impact. Cargo pack damaged.

1.3.3. Mainplanes. Port: Damage to leading edge and tip, lower skin, front span and flap.

Starboard: Damage to lower skin. Left strut and end fitting broken.

1.3.4. Empennage. Fin and rudder damaged by impact.

1.3.5. Undercarriage. Nosewheel complete with fork torn off mounting.

1.4. Other damage.

No other damage.

1.5. Crew Information.

The pilot Amarjeet Singh Grewall, aged 27 holds a current East African Commercial Pilot's Licence issued on the 24th September, 1966. This licence has been kept current and his last medical examination for renewal was taken on the 22nd September, 1967. The licence is restricted to "Day flying only" and is rated in Part I for Cessna 150, 172, 206 and PA.28 Aircraft. His flying experience to date totals 790 hours and includes 120 hours on the subject aircraft. Mr. Grewall also holds a valid Flight Radio Telephony Operator's Licence.

1.6. Aircraft Information

The aircraft, a Cessna U206A was constructed on the 8th November, 1965, by the Cessna Aircraft Company of Wichita, Kansas. It arrived in East Africa in possession of Export Certificate of Airworthiness No. E.62473 issued by the U.S.A. Federal Aviation Agency on the 28th November, 1965. An East African Certificate of Airworthiness No. 393 was issued on 2nd December, 1965 and, having been renewed was current until 9th November, 1968.

The aircraft is classified in the Transport Category (Passengers).

The aircraft has flown 1362 hours since new and 60 hours since Certificate of Airworthiness renewal. The engine and propeller has run 1363 hours since new and since overhaul 228 hours. The last maintenance check was a Check II carried out on 25th November, 1967 some 3 hours flying time previous to the accident.

After a previous flight from Kasese to Entebbe on the 5th December, 1967 the pilot A.S. Grewall had reported in the Technical Log "aircraft tends to turn to right after landing. Have to press hard on brakes to release nose wheel steering". Inspection by the engineer based at Entebbe revealed no fault, and the aircraft was cleared for further operations, the next flight being that on which the accident occurred.

1.7. Meteorological Information

The meteorological report passed to the pilot prior to landing was:

Wind 180/10 Vis. 45 Km. Cloud 1/8 cu. 2500 ft.
weather Fair QNH 1018 mbs. 30.07 INS.

1.8. Aids to navigation.

Not relevant.

1.9. Communications.

Not relevant.

1.10. Aerodrome and ground facilities.

The runway surface at Mwanza is constructed of murram with a dressing of coarse sand or fine gravel, the latter tending to accumulate on the edges of the runway. There is a drainage ditch 10 yards from and parallel to the edge of the right hand side of Runway 12. This slopes gently from the edge of the runway and then shows a vertical face of approximately 1 ft. 6 ins.

1.11. Flight Recorder.

No recorder fitted.

1.12. Wreckage.

The aircraft, soon after leaving the runway, ran through a shallow drainage channel during which the nosewheel and fork assembly were ripped off. The aircraft then turned over on its back, severely damaging the fin/rudder assembly, rear fuselage, mainplanes and propeller.

Examination of the wreckage revealed no evidence of pre-crash defect or malfunctioning.

1.13. Fire.

No fire occurred.

1.14. Survival aspects.

All occupants were wearing lap straps. Evacuation was carried out with assistance from the Airfield Safety Services in an orderly manner and no injuries were sustained by any of the occupants.

1.15. Tests and Research.

Not relevant.

1.16. Medical aspects.

Not relevant.

2. ANALYSIS AND CONCLUSIONS

2.1. Analysis.

Wheel marks on the runway indicated that the aircraft touched down on the centreline of the runway, turned to the right, left the runway at an angle of approximately 35° to the runway edge, passed over a drainage ditch which broke off the nose wheel fork then, after a further 20 yards, turned tail over nose wheel leg in a forward direction and came to rest inverted.

It is probable that the initial swing to the right was initiated by the cross wind from the right of the aircraft heading. Immediate application of left rudder and slight left brake failed to correct the swing. Scuff marks made by the main wheels during the few yards before the aircraft left the runway indicate that full brake was applied to both wheels at that stage. However, the braking action was not sufficient to stop the aircraft from continuing off the runway through the drainage ditch. If the drainage ditch had not been in the position it was or if its contours had been graded out to a gradual slope it is probable that the nose wheel would have remained intact and the aircraft would not have turned over.

In view of the pilot's previous report that the aircraft swung to the right on landing the nose wheel assembly and control system were checked for malfunction and were found to be serviceable.

2.2. Conclusions.

(a) Findings:

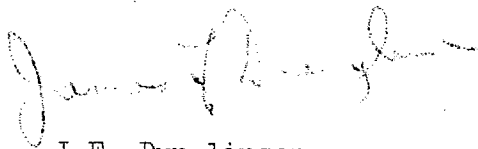
- (i) The documentation of the aircraft was in order.
- (ii) The pilot was properly licensed.
- (iii) There was no pre-crash failure or malfunction of the aircraft, its engine or equipment.
- (iv) The aircraft was loaded and trimmed within limits.

(b) Cause.

During a landing the aircraft swung off the runway to starboard. The nose wheel broke off in a drainage ditch parallel to the edge of the runway with the result that the nose wheel leg "dug in" and caused the aircraft to overturn.

Recommendations.

When open drainage has to be provided at runway edges the slopes on both sides of the ditch should be graded out to provide smooth entry and exit.



J.F. Dunglinson

DEPUTY CHIEF INSPECTOR OF ACCIDENTS

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