

MINISTRY OF COMMUNICATIONS AND TRANSPORT
ACCIDENT INVESTIGATION BRANCH

CIVIL AIRCRAFT ACCIDENT NO. CAV/ACC/2/80

REPORT ON THE ACCIDENT TO A CESSNA A185F
AIRCRAFT REGISTRATION NO. 5H-MRF WHICH
OCCURED ON 17TH FEBRUARY, 1980 AT ARUSHA AIRPORT
(03°22'S, 36°38'E) TANZANIA

AIRCRAFT TYPE	:	A CESSNA A185F.
NATIONALITY AND REGISTRATION MARKS	:	5H-MRF.
ENGINE	:	CONTINENTAL IO-520-D-24.
REGISTERED OWNER	:	MINISTRY OF AGRICULTURE, CROP DIVISION, P. O. BOX 9071, DAR ES SALAAM.
OPERATOR	:	KILIMO ANGA, P. O. BOX 7100, ARUSHA.
CREW	:	ONE PILOT.
PASSENGERS	:	ONE.
PLACE OF ACCIDENT	:	RWY 09, ARUSHA AIRPORT.
DATE	:	17TH FEBRUARY, 1980.
TIME	:	0740 HOURS.

ALL TIMES IN THIS REPORT ARE GMT

SYNOPSIS

Returning from a sugar-cane spray mission at Arusha Chini, the aircraft landed on RWY 09 at Arusha Airport, bounced three times, failed to recover from this and subsequently ground-looped. The damage caused to the aircraft was the direct result of this. There were neither injuries nor fire.

FACTUAL INFORMATION

1.1 HISTORY OF THE FLIGHT

5H-MRF was returning to base at Arusha Airport after a sugar-cane plantation spray mission at Arusha Chini, Moshi where it departed at 0710 hours. The flight which lasted approximately 35 minutes was without incident until after touch down on Runway 09 at Arusha Airport.

After carrying out his normal pre-landing checks, the pilot touched down with a speed of about 70 kts. some 230 metres from the threshold. It bounced three times (the first two bouncings were on 2 main wheels and the third one was on three wheels.) It rolled for about 60 metres before veering to the right where it continued its roll on the grass uncontrollably for about 80 metres before finally coming to rest facing the South. The damage caused to the aircraft was the direct result of the accident. There were no injuries and there was no fire.

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1.2

INJURIES TO PERSONS

<u>INJURIES</u>	<u>CREW</u>	<u>PASSENGERS</u>	<u>OTHERS</u>
Fatal	-	-	-
Serious	-	-	-
None	1	1	-

1.3

DAMAGE TO AIRCRAFT

The aircraft was substantially damaged.

1.4

OTHER DAMAGE

None.

1.5

CREW INFORMATION

(a) Born on 23rd November, 1943 at Bagamoyo, the Pilot held a private Pilot's Licence number 2037(T250) issued on 23rd November, 1970. The licence has since been kept current with the present validity due to expire on 26th February, 1982. The licence is rated for all single and multi engine aeroplanes (in Group 'A') under 12500 lbs. (5682 Kg. approx.) M.T.W.A. He also held a Radio Telephony Operator's Licence number 2170(T195) issued on 23rd November, 1970 and kept valid in line with the PPL.

(b)

EXPERIENCE

At the time of the accident, the pilot claimed a total of 1444 hrs. flying experience to his credit broken down as follows:-

Multi Engine:

Day : Dual - 30.18
 Second Pilot- 13.18

Single Engine:

Day : Solo - 1205.39
 Dual - 39.36
 Night : Solo - 10.18
 Dual - 13.42

Experience on Type (Cessna A185F)

P - 310.9
 P₁ U/S - 15.00

* It should be noted that this is the third accident involving this Pilot - the last one was on 10th August, 1979.

1.6 AIRCRAFT INFORMATION

(a) The aircraft, a Cessna Serial No. 185-03233, arrived in Tanzania with an FAA Export Certificate of Airworthiness number E169048 dated 6th April, 1978. On 23rd May, 1978 a Certificate of Registration number 227 was issued and a Certificate of Airworthiness number 179 was issued on 21st June, 1978. This has since been kept current with the present validity due to expire on 20th June, 1980.

The aircraft had completed a total of 154.1 hours since manufacture. The engine, a Continental IO-520-D-24, Serial number 563828, had also completed 154.1 hrs. since new. Similarly, the propeller, a McCauley D2A34C58/90AT-8 Serial number 767788 had also done 154.1 hrs. since manufacture.

(b) MAINTENANCE HISTORY

The aircraft was maintained by Kilimo Anga to their approved Maintenance Schedule reference number MOA/MS Issue 1 at their Maintenance Base at Arusha Airport. All the maintenance required by this Schedule was up to date.

Airframe total hrs. since the last check 2 and the CoFA renewal:- 20.1.

All FAA Airworthiness Directives and DCA Notices applicable to the aircraft, its engine, propeller and equipment had been complied with.

(c) AIRCRAFT WEIGHT AND CENTRE OF GRAVITY LIMITS

The aircraft weight and Centre of Gravity were within the prescribed limits.

1.7 METEOROLOGICAL INFORMATION

The wind speed at the time of the accident was given as 7 to 8 MPH from Southerly direction. The weather at the time was fine and was not considered contributory to the accident.

1.8 AIDS TO NAVIGATION

Not applicable.

1.9 COMMUNICATIONS

Not applicable.

1.10 AERODROME AND GROUND FACILITIES

Arusha Airport, located at 0322S/3638E, has a 1594 x 40 metres Rwy identified as 09/27, with the former having a slope gradient % of + 0.82. The Rwy surface is bitumen and the Airport is owned and maintained by the Tanzania Government.

1.11 FLIGHT RECORDER

Not fitted and none required to be fitted.

1.12 WRECKAGE

(a) The aircraft which incurred the following damage ended up facing a Southerly direction:-

- port undercarriage leg ripped off.
- port wing severely bent at the tip.
- spray tank ripped off.
- one of the propeller blades bent about 15cm from tip.
- port door upper hinge torn off.
- port aileron bent.

(b) POSITION OF CONTROLS/INSTRUMENTS

- tail wheel handle - UNLOCK.
- tail trim - OFF.
- cowl flaps - FULL OPEN.
- rudder trim - SLIGHTLY NOSE LEFT.
- throttle - FULL CLOSED.
- prop RPM - FULL INCREASE.
- mixture - FULL LEAN.
- tank selector - BOTH TANKS.
- fuel valve - OFF.
- DRM Compass - 200°.
- Master Switch - OFF.
- auxiliary fuel pump - OFF.
- spray tank emergency dump lever - IN POSITION.

1.13 MEDICAL AND PATHOLOGICAL INFORMATION

Not applicable.

1.14 FIRE

There was no fire.

1.15 SURVIVAL ASPECTS

The accident was survivable. Both doors did not jam. Safety equipment present in the aircraft were life belts and a fire extinguisher.

1.16 TESTS

The tail wheel was free to swivel and both the cockpit control handle and tail wheel lock were effective. The rudder control system was also fully functioned.

2. ANALYSIS

- (a) The pilot contended that he took immediate corrective action to counter the yawing of the aircraft by applying left rudder and that there was no response. The Inspector of Accidents carried out a functional check on both the rudder and the tail wheel systems and both were satisfactory. The track marks left by the tyres indicated no corrective action was taken at all. There was also evidence of rather harsh braking on both wheels beginning at a point where the aircraft exited the rwy, at which point it was already too late to save the situation.
- (b) The pilot also OPINED that the spray tank became detached, was dragging on the rwy and thus was responsible for altering the aircraft's course. He further stated that some mysterious marks running almost parallel with the starboard main wheel track were caused by the tank dragging along. Although the cause of these marks could not be identified, it is the opinion of the Inspector of Accidents that these marks, which may have been made prior to the accident, happened to have been there purely by coincidence. Infact there were no scratches on the fibre glass tank to correspond with these particular marks. It was also obvious that the tank became detached following the failure of the port undercarriage leg.
- (c) Four independent eye witness reports also confirmed that the aircraft bounced three times on touch down and almost immediately went off the rwy.

3. CONCLUSION

3.1 Findings

- (a) The pilot was not properly licensed. Para. 2(b)(i) of the 8th schedule of the Air Navigation Regulations prohibits the holder of a PPL from flying aircraft on Aerial work duties.
- (b) The aircraft's documents were in order.
- (c) The aircraft was properly loaded.
- (d) There was no malfunction of any part of the aircraft prior to the accident.
- (e) The damage to the aircraft was the direct result of the accident.
- (f) The pilot failed to take corrective action to regain directional control.
- (g) All the maintenance required by the relevant approved Maintenance Schedule had been carried out.
- (h) All the FAA Airworthiness Directives and DCA Notices applicable to the aircraft, its engine, propeller and equipment had been complied with.

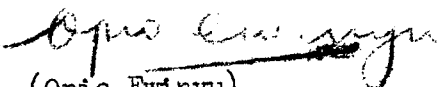
3.2 CAUSE

The report concludes that the cause of the accident was the pilot's failure to maintain directional control during a landing roll. This resulted in the aircraft proceeding on its path in an uncontrollable yaw, which culminated in a ground loop.

4. SAFETY RECOMMENDATIONS

The Directorate of Civil Aviation should devise a more effective system of ensuring that pilots undertake only the kind of flying operation for which they are licensed.

This could be done by strengthening the Flight Operations Inspectorate.


(Opio Ewinyu)

INSPECTOR OF ACCIDENTS