

REPUBLIC OF KENYA



MINISTRY OF ROADS AND TRANSPORT
STATE DEPARTMENT FOR TRANSPORT
AIRCRAFT ACCIDENT INVESTIGATION DEPARTMENT

INVESTIGATION REPORT

**PRELIMINARY INVESTIGATION REPORT OF AN OCCURRENCE
INVOLVING AN CESSNA 206, REGISTRATION 5Y-CJM ON 10
NOVEMBER 2020 AT BEATON'S AIRSTRIP IN MAASAI MARA**

AIRCRAFT ACCIDENT INVESTIGATION

OPERATOR	:	Prime Aviation Ltd
AIRCRAFT TYPE	:	Cessna TU 206 G
MANUFACTURER	:	Textron Aviation Inc.
AIRCRAFT REGISTRATION	:	5Y-CJM
AIRCRAFT SERIAL NUMBER	:	AU206-05048
DATE OF REGISTRATION	:	09 April 2014
NUMBER AND TYPE OF ENGINE	:	One, TSI0-520-M
DATE OF OCCURRENCE	:	10 November 2020
LAST POINT OF DEPARTURE	:	Beaton's airstrip
POINT OF INTENDED LANDING	:	Tigoni Airstrip, Limuru
TIME OF OCCURRENCE	:	1205 (1505)
LOCATION OF OCCURRENCE	:	Beaton's airstrip, Maasai Mara
TYPE OF FLIGHT	:	Commercial (Non-Scheduled)
NUMBER OF PERSONS ON BOARD	:	04
INJURIES	:	None
NATURE OF DAMAGE	:	Minor
CLASS OF OCCURRENCE	:	Serious Incident
PILOT IN COMMAND	:	CPL holder
PIC FLYING EXPERIENCE	:	2,763.2 hours

All times given in this report is Coordinated Universal time (UTC), with East African local time in parenthesis

OBJECTIVE

This report contains information which has been determined up to the time of publication. The information in this report is published to inform the aviation industry and the public of the general circumstances of the accident.

This investigation has been carried out in accordance with *The Kenya Civil Aviation (Aircraft Accident and Incident Investigation) Regulations, 2018 and Annex 13 to the ICAO Convention on International Civil Aviation.*

The sole objective of the investigation of an accident or incident under these Regulations shall be the prevention of accidents and incidents. It shall not be the purpose of such an investigation to apportion blame or liability.

INVESTIGATION PROCESS

The occurrence involved Cessna TU 206 G aircraft registration 5Y-CJM, and was notified to the Aircraft Accident Investigation Department (AAID), State Department for Transport (SDT), Ministry of Roads and Transport through a phone call by the Operator.

A team of AAID investigators were dispatched to the site on 19 November 2020 for initial onsite investigation and witness interviews.

After the initial on-site investigation phase, the occurrence was classified as a “serious Incident” owing to minor damage to the Aircraft.

In accordance with ICAO best practices, AAID notified National Transportation Safety Board (NTSB) of United States of America as the aircraft accident investigation authority of the state of manufacture of the aircraft and engine.

TABLE OF CONTENTS

SYNOPSIS.....	7
1. FACTUAL INFORMATION.....	10
1.1. History of Flight.....	10
1.2. Injuries to persons	11
1.3. Damage to Aircraft.....	11
1.4. Other damage	11
1.5. Personnel Information.....	12
1.5.1 The Pilot.....	12
1.6. Aircraft Information.....	12
1.6.2 Maintenance records	13
1.6.3 Mass and Balance	13
1.7. Meteorological Information.....	13
1.8. Aids to Navigation	13
1.9. Communications	13
1.10. Aerodrome Information.....	13
1.11. Flight Recorders	14
1.12. Wreckage and Impact Information.....	14
1.13. Medical and Pathological Information.....	14
1.14. Fire.....	14
1.15. Survival Aspects.....	14
1.16. Tests and Research	15
1.17. Organizational and Management Information.....	15

1.18.	Additional Information	15
1.19.	Useful and Effective Investigative Techniques	15
2.	ANALYSIS	18
3.	CONCLUSIONS	18
4.	SAFETY RECOMMENDATIONS	18

INTENTIONALLY LEFT BLANK

LIST OF ABBREVIATIONS/GLOSSARY OF TERMS

°	-	Degrees
AAID	-	Aircraft Accident Investigation Department
AMO	-	Approved Maintenance Organization
ELT	-	Emergency Locator Beacon
ICAO	-	International Civil Aviation Organization
KCAA	-	Kenya Civil Aviation Authority
METAR	-	Meteorological Terminal Aviation Routine Weather Report
NM	-	Nautical miles
PPL	-	Private Pilots' License
TSN	-	Time since New
VFR	-	Visual Flight Rules

**Photos and figures used in this report are taken from different sources and may be adjusted from the original for the sole purpose of improving the clarity of the report. Modifications to images used in this report are limited to cropping, magnification, file compression or enhancement of colour, brightness, contrast or addition of text boxes, arrows or lines.*

SYNOPSIS

On 10 November 2020 the Prime Aviation Ltd Cessna C 206 aircraft registration 5Y-CJM departed Ron Baron's airstrip in Maasai Mara, Narok County for Tigoni airstrip in Limuru, Kiambu County with 3 passengers and a pilot on board. Right after takeoff, the flight diverted back to Ron Baron's because of an oil leak. No emergency was declared. On touchdown the aircraft overran the runway and crashed in a pitched nose down. The aircraft collided with the ground, coming to rest about 10 metres past the runway threshold. All occupants evacuated from the aircraft uninjured. The aircraft sustained minor damage.

AAID determined the probable cause of the occurrence as the pilot's failure to complete pre-flight inspection of the aircraft resulting in the unsecured engine oil filler cap not being detected, and the engine venting significant oil during operation.

1. FACTUAL INFORMATION

1.1. History of Flight

On 10 November 2020 at about 1140 (1440), the pilot of Cessna C206 aircraft registration 5Y-CJM performed a pre-flight inspection of the aircraft in readiness for a commercial unscheduled flight from Ron Baton's private airstrip in Maasai Mara, Narok County to Tigoni airstrip in Limuru, Kiambu County. During his pre-flight inspection, the pilot replenished the engine with a litre of oil. On board were the pilot and 3 passengers.

At about 1200 (1500) the aircraft took off from runway 09 on a VFR flight and the pilot immediately identified streaks of oil appearing on the left side of the windshield. He initiated a turn to Ron Beaton's airstrip for landing.

On touchdown on runway 09 and with partial pilot's view the aircraft overran the runway, struck a stone with the nose landing gear and came to rest. All occupants exited the aircraft uninjured.

Upon inspection, the engine oil filler cap access was found unlatched. The cap is closed securely by a latching mechanism that requires one to twist a tab 90° and fold it down.



FIGURE No. 1 – A photo of the front section of the aircraft

1.2. Injuries to persons

Injuries	Crew	Passengers	Others
Fatal	0	0	0
Serious	0	0	0
Minor/None	1	3	

1.3. Damage to Aircraft

The aircraft sustained minor damage. It came to rest with the nose wheel struck off from its assembly and two propeller blades bent along their length. The propeller spinner was also damaged.

Examination of the wreckage revealed no deficiencies prior to the accident.



FIGURE No. 2 – A photo depicting extent of damage to the propeller and nose landing gear wheel.

1.4. Other damage

Not applicable

1.5. Personnel Information

1.5.1 The Pilot

Records indicated that the pilot was certified and qualified for the flight in accordance with existing KCAA regulations. He held a Kenyan CPL and a valid class one medical certificate with no limitations/restrictions.

Pilot license	CPL
Medical expiry date	02 November 2021
Total flying hours	2,762.2
Hours, last 90 days	34.55
Hours, last 30 days	8.8
Hours, last 07 days	3.9
Hours, last 24 hours	0.55

1.6. Aircraft Information

The occurrence aircraft was a Cessna TU206G aircraft, serial number AU206-05048. It was a high wing, single engine aircraft, with a tricycle landing gear configuration and a steerable nose wheel. It was powered by a Continental motors TSI0-520-M, 285 HP four-cylinder, horizontally opposed, reciprocating engine, driving a 3 bladed variable pitch McCauley propeller. The aircraft held a valid certificate of airworthiness issued by KCAA.

Manufacturer	Textron Aviation Inc.
Type and model	Cessna TU206G
Serial number	AU206-05048
Total airframe time	4,696.1 hours
Engine type (no.)	Continental motors TSI0-520-M (1)
Propeller (no.)	McCauley propeller (1)
Fuel type used	AVGAS

1.6.2 Maintenance Records

Maintenance was performed by an AMO (Pro Aviation Systems). Last check 1 inspection was carried out on 22 October 2020. Records showed that the aircraft, engine and propeller had flown a total of 4,696.1, 3,240.1 and 69.1 hours since new.

Reviewed records indicated that the aircraft was certified, equipped, and maintained in accordance with existing KCAA regulations and approved procedures.

1.6.3 Mass and Balance

Not considered a factor.

1.7. Meteorological Information

At the time of the occurrence the weather at departure and destination was suitable for a VFR flight.

1.8. Aids to Navigation

Aids to navigation were not considered a contributory factor in this occurrence.

1.9. Communications

Not considered a factor.

1.10. Aerodrome Information

The airstrip located in the vast Maasai Mara game reserve serves as a private airstrip (coordinates 01° 21.799”S, 035° 11.352”E). The runway orientation is 09/27 and has a gravel surface.

1.11. Flight Recorders

The aircraft was not equipped with recorders, nor was it a requirement by KCAA regulations.

1.12. Wreckage and Impact Information

The aircraft overran the runway, struck a stone with the nose landing gear and came to rest with the propeller striking the ground. The nose wheel assembly broke off. The propeller spinner was damaged. The rest of the aircraft remained intact.

1.13. Medical and Pathological Information

There were no injuries.

There was no evidence to indicate that incapacitation, psychosomatic or physiological factors the performance of the pilot.

1.14. Fire

There was no inflight or post impact fire.

1.15. Survival Aspects

The occurrence was survivable. The 4 on board the aircraft were uninjured and exited the aircraft unaided.

The ELT was not activated.

1.16. Tests and Research

Not Applicable.

1.17. Organizational and Management Information

1.17.1. Prime Aviation Ltd

Aircraft Owner/Operator: Prime Aviation Ltd

Address: Nairobi, Kenya

The aircraft was operated by Prime Aviation Ltd and used for commercial unscheduled flights.

1.17.2. Standard Operating Procedures

1.17.2.1. Pre-flight Inspections

Prime Aviation Ltd Standard Operating Procedures (SOPs) call for the pilot to perform the pre-flight inspection of the aircraft.

The manufacturer's pilot's operating handbook (POH), under Normal Procedures – **Preflight, includes:**
“3. Engine Oil Dipstick/Filler Cap: a. Oil level – CHECK, b. Dipstick/Filler cap – SECURE”

It was the practice that the pilot usually completed the pre-flight inspection. In this case, he did not perform a complete pre-flight inspection.

1.18. Additional Information

Not applicable.

1.19. Useful and Effective Investigative Techniques

Not applicable.

2. ANALYSIS

Except for the unlocked engine oil filler cap, examination of the aircraft revealed no pre-existing mechanical conditions that would have contributed to the occurrence.

2.1 Engine oil leak

Latching the oil reservoir cap after checking and adding oil is a requirement. The pilot did not latch the engine oil filler cap after checking and replenishing oil.

2.2 Prime Aviation Cessna C206 standard Operating Procedures

The company standard operating procedures (SOPs) call for the pilot to perform the pre-flight inspection of the aircraft. It was the practice that the pilot usually completed the pre-flight inspection. In this case, he did not perform a complete pre-flight inspection, which should have identified the unsecured oil filler cap.

3. CONCLUSIONS

3.1 Findings

1. The pilot was properly certificated and licensed to operate the flight as per KCAA regulations.
2. There was no evidence incapacitation, psychosomatic or physiological factors that might have adversely affected the pilot's performance.
3. The aircraft was duly equipped, dispatched, and maintained at the time of the occurrence.
4. The aircraft had a valid certificate of airworthiness.
5. During the pre-flight inspection of the aircraft, the engine oil filler cap was left unsecured.
6. There was no complete pre-flight inspection of the aircraft, resulting in the unsecured engine oil filler cap not being detected, and the engine venting significant oil during operation.

3.2 Probable causes

AAID determined the probable cause of the occurrence as the pilot's failure to adhere to the pre-flight inspection checklist of the aircraft resulting in the unsecured engine oil filler cap not being detected, and the engine venting significant oil during operation.

4. SAFETY RECOMMENDATIONS

The Prime Aviation Ltd to ensure implementation of its Standard Operating Procedures to mitigate the consequences of an unsecured engine oil filler cap.

Martyn Lunani

CHIEF INVESTIGATOR OF ACCIDENTS

May 2023