



REPUBLIC OF KENYA

MINISTRY OF TRANSPORT AND INFRASTRUCTURE

AIR ACCIDENT INVESTIGATION

ACCIDENT REPORT

5Y BLA

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TABLE OF ABBREVIATIONS

AAID	Air Accident Investigation Department
ALS	Aircraft Leasing Services
CAVOK	Ceiling and Visibility Ok
CB	Circuit Breaker
CRM	Crew Resource Management
CPL	Commercial Pilot Licence
DME	Distance Measuring Equipment
EGPWS	Enhanced Ground Proximity Warning System
HCMM	Mogadishu Airport
HKJK	Jomo Kenyatta International Airport
HKWJ	Wajir Airport
KAA	Kenya Airports Authority
KCAA	Kenya Civil Aviation Authority
PNF	Pilot Not Flying
PF	Pilot Flying
VOR	Very high frequency Omni Range
VMC	Visual Meteorological conditions

CIVIL AIRCRAFT ACCIDENT REPORT

CAV/ACC/BLA/10

OPERATOR: AIRCRAFT LEASING SERVICES

OWNER: AIRCRAFT LEASING SERVICES

AIRCRAFT: BEECHCRAFT KING AIR 200

REGISTRATION: 5Y BLA

PLACE: WAJIR AIRPORT

Co-ordinates N 01° 44' 52.78" E 040° 09'

DATE: 28 MARCH 2010

TIME: 1140 HOURS

All times given in this report are Co-ordinated Universal Time (UTC)

East African Local Time is UTC plus 3 hours.

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SYNOPSIS

On March 28, 2010, about 0900 Co-ordinated Universal Time (UTC) a Beechcraft Kingair 200 owned and operated by Aircraft Leasing Services (ALS) suffered a belly landing in Wajir airport, Kenya (HKWJ). The aircraft was on a UN charter flight. Air Accident Investigation Department (AAID) was notified about the incident; investigators were dispatched to the site and arrived at 1100.

The aircraft was on a flight from Mogadishu Somalia (HCMM) to Wajir for a day stop before flying back to HCMM to pick up passengers it had earlier dropped. After coming to a stop the crew evacuated the aircraft on the runway. There were no injuries to the occupants or on ground. The aircraft was evacuated with no injuries reported. The aircraft sustained substantial damage to its propellers, engines and belly area.

1. FACTUAL INFORMATION

1.1. History of the flight

The aircraft was on a flight from Mogadishu Somalia where it dropped its passengers and was to day stop at Wajir and later pick the same passengers in Mogadishu for Nairobi.

The landing in Mogadishu was uneventful. The crew tried to use flaps on their take off from Mogadishu to Wajir but the flap circuit breaker (CB) kept on popping. They elected to carry out a flapless take off and subsequently a flapless landing in Wajir. While landing in Wajir both propellers struck the runway. The aircraft slid along the runway on the belly for a distance of about 600 meters. It eventually sat on its belly approximately 1100 meters from the threshold of Runway 15 and 600 meters from the first point of contact attributable to 5Y-BLA. The evacuation took place immediately after the aircraft came to rest; the crew escaped quickly through the door. There was no fire.

On further interview with the crew, the Flying pilot (PF) testified not seeing three green lights (gear down and locked) though he remembers pilot not flying hand movement towards the gear lever. His reason for not paying much attention was that he was expecting to hear the gear warning horn if the pilot not flying had not lowered the gear.

The pilot not flying (PNF) also testified not seeing the 3 green lights (gear down and locked).He also said that he thought he lowered the gear.

Visual Meteorological conditions (VMC) prevailed in the airfield at the time of incident. Visibility was CAVOK.

1.2. Injuries to persons

Injuries	Crew	Passengers	Others
Fatal	-	-	-
Serious	-	-	-
Minor/None	2	-	

1.3. Damage to aircraft

Both propellers were destroyed due to impact with runway. The port engine starter generator broke off its housing and the starboard high pressure fuel pump housing broke on impact. The aircraft belly was also damaged while the lower antennas broke off. The lower section of the ventral fin was abraded.

1.4. Personnel information

The captain and first officer had flown together previously as a crew, but crew assignments varied as they maintained dual currency, flying also as a captain and first officers on company De-Havilland (DHC-8) aircraft respectively.

The commander held an Airline Transport Pilots License. He held a class one airman medical certificate issued on 16 February 2010 with no limitations. He had 11,176 hours flying experience, 800 hours being on type.

The pilot monitoring held a Commercial Pilot License (CPL) with a class one medical certificate issued on 4 May 2009. He had a total of 1950 hours, 400 hours being on type. He was also rated on PA 34, C182, 206, 208 and DHC-8.

According to ALS crew training files, there were no records to indicate that any of the two pilots had attended a formal king-air 200 ground school. However the training records indicated that both the PF and the PNF had undergone the company's initial flight type training in Nov 2002 and Mar-Jun 2007 respectively. They had also undergone company's proficiency

check and route checks which the company carries out every six months and 12 months respectively

Aircraft information

The Beech super king air 200 is a nine-seater aircraft powered by two Pratt & Whitney (PT6A-41) engines. It has dual controls although it is certified for minimum one pilot operation. Due to ALS client contractual agreement the aircraft was being operated by two crew.

The aircraft was certified, equipped, and maintained in accordance with existing regulations and approved procedures. The aircraft's weight was within limits, and the centre of gravity was within the normal range.

The Enhanced Ground Proximity Warning System (EGPWS) on the aircraft had been deactivated at the time of incident. This was confirmed by the commander who testified to having deactivated the system due to nuisance warnings in flight. The flap motor circuit breaker was reported popping out on any attempt to operate the flaps. This was attributed to flap dynamic brake relay which was operating intermittently.

Meteorological information

Visibility was >10km with an average temperature of 30°C, dew point of 23°C partly cloudy with a southerly wind of about 10 knots.

Aids to navigation

No deficiencies with navigational aids were noted. The Wajir Airport is equipped with a Very High Frequency Omni Range (VOR) operating on a frequency of 112.50 kHz and distance measuring equipment (DME) operating on the same frequency. The airport also equipped with radar although there is no radar monitor. All ground-based navigation aids were reported to be operating within

normal parameters. There were no reported unserviceabilities on the aircraft navigation receiving equipment.

Communications

All communications between the aircraft and ground facilities had been established and were normal, and all communications equipment functioned properly. No ground or airplane communications equipment deficiencies were noted.

Aerodrome information

Wajir airport is located near Wajir military base and is used as an entry into the country.

The fire station telephone line is not well manned due to the uninhabitable status of the office. Wajir being a hot semi-arid area the outside air temperature are normally very high. The firemen office is fitted with air conditioning but the system is not operational forcing to the custodians to seek accommodation in other well conditioned offices.

The ATC radar facility has been installed but there is no radar monitoring screen.

It was noted that the Kenya Airports Authority pick-up was ferrying people to and from the scene, some of whom had no role to play in. This posed a danger since it was not possible for the ATC to communicate and advice all the persons on the ground of an incoming traffic or where they were required to vacate the active runway and taxiway.

Wreckage and impact information

The aircraft was dragged from the runway to the side and then lifted manually. The aircraft was placed on jacks and inspected. The emergency gear handle was pulled. The landing gear was hand pumped to the down and locked

position. The belly area had abrasions and damage from scraping along the runway. The aircraft was towed to a secure long term parking area.

The aircraft was later flown to the operator's maintenance facility for further examination.



Wreckage on its belly



After recovery before gear extension.

Fire

There was no post crash fire.

Tests and research

The aircraft was ferried from Wajir to the ALS maintenance hangar in Wilson Airport with gear extended. The take-off from Wajir and landing at Wilson Airport was uneventful.

The landing gear was examined, and there was no mechanical failure to any of the landing gear components. With the landing gear down and locked, attempts were made to collapse each of the main landing gear. It was not possible to break the landing gear free of the down and locked position.

Additionally, there were no discrepancies noted in the rigging of the landing gear, and the landing gear oleo extension appeared normal.

A gear swing was carried out and the gear swung freely with no hang-ups.

Organizational and management

ALS operates a fleet of different types of aircrafts, providing services to international humanitarian and private organisations. They include De-Havilland (DHC-8), Beechcraft 1900c and Embraer 135. The Company conducts flight crew and maintenance training at its base in Wilson Airport. ALS conducts bi-annual recurrent training and route check every 12 months. Flight crews are also trained on Crew resource management (CRM) annually.

Additional Information

Checklist items are normally completed using the challenge and response method. Under this method the pilot flying would call for the check, and the pilot not flying also referred to pilot monitoring, would verbally challenge the pilot flying for the appropriate response.

2 ANALYSIS

No faults were found with the aircraft that would indicate any mechanical failure or improper rigging of the landing gear. Retraction of the landing gear can only be accomplished if the over centre mechanical down lock for the nose gear is removed or the movement of the main gear actuator's torque shaft during the retraction sequence.

The presence of scoring on the runway attributed to 5Y-BLA followed by the propeller markings indicated that the aircraft touched down first with the ventral fin. All the three landing gears were well tucked in their respective wheel wells. No damage at all on the gear, the wheel well wall or the nose gear doors indicated that the gear was extended by the time the aircraft touched down.



3. CONCLUSIONS

The GPWS is designed to generate aural and visual warnings if the aircraft enters a flight path toward the ground that would lead to a collision with terrain, or for a landing with an incorrect landing configuration. Had the EGPWS been operational, during the approach to Wajir, the EGPWS mode 4 would have activated at an altitude, measured by the radio altimeter, generating warning lights and the aural warning "TOO LOW, GEAR". Since the EGPWS had been deactivated the "TOO LOW – GEAR" warning which could have alerted the crew of their configuration and impending danger did not come on.

Flapless landing is not a common feature on normal operation of the king air 200. This could have provided the crew with unusual landing conditions, in turn, shifting most of their attention to the aircraft and missing some of the vital before landing checks.

The abrasion on the ventral fin was an indication that 5Y-BLA was in a flare attitude and the tail section touched the ground first.

The cause(s) of the incident is attributed to;-

- a) Failure to adhere to landing procedure by the crew

Contributing factors:

- a) Loss of situational awareness and unpreparedness to react in timely manner after a system failure.