



AIRCRAFT ACCIDENT FINAL REPORT
A 02/20
Air Accidents Investigation Bureau (AAIB)
Ministry of Transport

Accident Involving a Bell 206L-3
Registration 9M-AZK
at LP43 on the Malaysia – Brunei Border
on 1 February 2020



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Issued on 1 February 2021

FINAL REPORT A 02/20

**AIR ACCIDENTS INVESTIGATION BUREAU (AAIB)
MALAYSIA**

ACCIDENT REPORT NO. : A 02/20

OWNER / OPERATOR : SABAH AIR AVIATION SDN BHD
AIRCRAFT TYPE : BELL 206L-3
NATIONALITY : MALAYSIA
REGISTRATION : 9M-AZK
PLACE OF OCCURRENCE: LP43, MALAYSIA – BRUNEI BORDER
(N 04° 5' 31.70" E 114 ° 33' 17.8")
DATE AND TIME : 1 FEBRUARY 2020 AT 1743LT

This investigation is carried out to determine the circumstances and causes of the accident with the sole objective for the preservation of life and the avoidance of accidents in the future. It is not for the purpose of apportioning blame or liability (ICAO's Annex 13 to the Chicago Convention).

All times in this report are Local Time (LT) unless stated otherwise. LT is UTC +8 hours.

INTRODUCTION

The Air Accidents Investigation Bureau Malaysia

The Air Accidents Investigation Bureau (AAIB) is the air accident and serious incident investigation authority in Malaysia and is accountable to the Minister of Transport. Its mission is to promote aviation safety through the conduct of independent and objective investigations into air accidents and serious incidents.

The AAIB conducts the investigations in accordance with ICAO's Annex 13 to the Chicago Convention, the Civil Aviation Act of Malaysia 1969 and the Civil Aviation Regulations of Malaysia 2016.

It is inappropriate that AAIB reports should be used to assign fault or blame or determine liability, since neither the investigation nor the reporting processes has been undertaken for that purpose.

In accordance with ICAO's Annex 13 paragraph 4.1, notification of the accident was sent out to the Civil Aviation Authority Malaysia (CAAM) as the State of Occurrence, Registration & Operator and also to the Transportation Safety Board of Canada as the State of Design and Manufacturer.

Unless otherwise indicated, recommendations in this report are addressed to the investigating or regulatory authorities of the State having responsibility for the matters with which the recommendations are concerned. It is for those authorities to decide what action is to be taken.

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ABBREVIATIONS

AAIB	Air Accidents Investigation Bureau
AVTUR	Aviation Turbine
CAAM	Civil Aviation Authority of Malaysia
FOM	Flight Operations Manager
ICAO	International Civil Aviation Organisation
JUPEM	<i>Jabatan Ukur dan Pemetaan Malaysia</i> (Surveying and Mapping Department of Malaysia)
LP	Landing Point
LT	Local Time
NTSB	National Transportation Safety Board
PAX	Passenger
PIC	Pilot-in-Command
POB	Persons on Board
RT	Radio Telephony
UTC	Coordinated Universal Time

SYNOPSIS

On 1 February 2020, a Bell 206L-3 helicopter bearing the registration 9M-AZK was involved in an accident at LP43 on the Malaysia-Brunei border. The aircraft had 2 POB.

9M-AZK had just lifted off from LP43 with an underslung load when the aircraft started to roll and yaw to the left. The PIC tried to level the aircraft as best that he could before crashing into the trees and coming to a rest in an inverted position. Both pilots survived with only minor injuries.

The AAIB Chief Inspector was notified and an investigation team was dispatched as soon as possible.

1.0 FACTUAL INFORMATION

1.1 History of the Flight

On Saturday, 1 February 2020, the ill-fated helicopter was tasked by JUPEM, Sarawak to assist in laying border markers along the Malaysia-Brunei border. Part of the task required the aircraft to transfer building materials from LP43 (prepared by the Brunei Team) to other LPs.

Upon the initial arrival at LP43 both pilots saw that the LP was not well prepared by the Brunei Team. Building materials were haphazardly placed around the LP leaving only a small space for the helicopter to land. **[See APPENDIX A (Fig 1 – 4)]** The PIC nonetheless decided to continue with the tasking but made a note to complain about the state of the LP after the tasking was completed.

During the second pick-up of an underslung load from LP43 things went horribly wrong. Due to the lack of space on the LP itself, the prepared underslung load (two concrete markers in a cargo net) was placed hardly two feet from the left skid of the aircraft. **[See APPENDIX**

A (Fig 4)] The concrete marker in the picture is placed at the approximate position where the underslung load was.

As the aircraft came up to the hover, the PIC noticed that the aircraft was starting to roll and yaw to the left. He tried to counteract this movement to the point that the cyclic even reached it maximum right input limit.

By this time the main rotor blades had come into contact with the trees to the left of the LP and the aircraft started to pitch downwards into the trees and bushes ultimately ending in an inverted position. Both pilots however had only minor injuries and managed to secure the throttle and fuel valve before egressing from the aircraft unassisted.

1.2 Injuries to Persons

Both the pilots suffered only minor cuts and bruises. Very much later, they were sent to a hospital for a thorough check-up.

Injuries	9M-AZK	
	Crew	Pax
Fatal	0	-
Serious	0	-
Minor / None	2	-

1.3 Damage to Aircraft

For images of damage to the aircraft on-site please refer to **APPENDIX B**. The aircraft was deemed as a total write-off.

1.4 Other Damages

Apart from the impact marks of the rotor blades on the surrounding trees, no damage to other property was recorded.

1.5 Personnel Information

The PIC (seated in the right-hand seat) of the helicopter that day was properly qualified for the underslung task at hand. The left-hand seat pilot however was not yet qualified for underslung work and therefore was acting only as a safety pilot.

1.6 Aircraft Information

The helicopter in question was owned and operated by Sabah Air Aviation Sdn Bhd, one of the oldest General Aviation Companies in Malaysia.

Aircraft Type	Bell 206L-3
Manufacturer	Bell Helicopter
Registration	9M-AZK
Serial No.	51484

1.7 Meteorological Information

The weather on that fateful day was clear with minimal wind conditions.

1.8 Aids to Navigation

Not applicable.

1.9 Communications

No distress calls were made that day over the RT. Information about the accident was relayed to the aircraft operator's Chief Pilot and FOM by the Safety Pilot through a Satellite Phone.

1.10 Aerodrome Information

Not applicable.

1.11 Flight Recorders

The Bell 206L-3 is not equipped with flight recorders (FDR and/or CVR) nor is it mandated by law to do so.

1.12 Wreckage and Impact Information

A visual assessment of the crash site revealed that 9M-AZK's rotor blades impacted the surrounding trees first before separating from the main rotor hub. The fuselage then came to a rest in an inverted position with its tail boom folded into two. See **APPENDIX B**.

1.13 Medical and Pathological Information

As stated earlier, both the pilots suffered only minor cuts and bruises and they were sent later to a hospital for a thorough check-up.

1.14 Fire

There was no post-impact fire. The fuel cell of the aircraft remained intact and no smell of AVTUR was detected at the crash site.

1.15 Survival Aspects

Although the helicopter had come to a rest inverted, the PIC managed to egress through the broken windscreen directly in front of him whilst his Safety Pilot egressed through his port cockpit door.

1.16 Tests and Research

Not applicable.

1.17 Organisational and Management Information

All organisation and management aspects of the operator were found to be in order throughout the investigation. Nonetheless the management of LP43 itself leaves much to be desired and will be discussed at length in the analysis section of this report.

1.18 Additional Information

Nil.

1.19 Useful or Effective Investigation Techniques

Nil.

2.0 ANALYSIS

2.1 According to the aircraft marshaller, as the aircraft was lifting off the ground the downwash from the rotor blades caused part of the cargo net containing two concrete markers to be blown up and get entangled onto the front end of the left-hand skid of the aircraft.

2.2 The marshaller tried to warn the PIC but it was too late to save the aircraft from rolling and yawing to the left before impacting the trees next to the LP. The Safety Pilot also did not notice that the cargo net had become entangled with the aircraft skid.

2.3 As can be seen from **Appendix A**, LP43 which had been prepared by the Brunei Team is situated on top of a hill in dense primary jungle only accessible on ground by foot or by air. Clearing an LP for even a small sized helicopter like the Bell 206L-3 is indeed a daunting physical and logistical challenge.

2.4 However all that effort was tarnished by the fact that the building materials (border markers, sand & concrete plus containers of water) were haphazardly placed around the LP restricting the amount of useful space available for the helicopter to land and carry out underslung operations.

2.5 This caused the placement of the underslung cargo net to be too close to the helicopter and more importantly out of sight from the PIC which ultimately led to the accident.

3.0 CONCLUSION

Better coordination between the stakeholders of this underslung operation is sorely needed. The management of material placed in proximity of the LP needs to be drastically improved.

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This accident is classified as an External Load Related Occurrence (EXTL).

4.0 SAFETY RECOMMENDATIONS

The helicopter operator in this case is required to ensure that a really comprehensive joint briefing to all stakeholders involved in such a tasking is carried out. This would include personnel from JUPEM, their contractors on the ground and especially the team preparing the LP.

This brief should:

- a. Educate everybody on the safety aspects with regards to helicopter underslung operations.
- b. Ensure that the minimum specifications required of a Landing Point is met, and
- c. Stressing the point that if these specifications are not met the tasking will not be carried out.

INVESTIGATOR-IN-CHARGE

Air Accidents Investigation Bureau

Ministry of Transport

1 February 2021

IMAGES OF LP43

LP43 (Fig 1 & 2)



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LP43 (Fig 3 & 4)



LP43 (Fig 5)



DAMAGE ASSESSMENT (IMAGES ON-SITE)

9M-AZK



9M-AZK (Cont...)



9M-AZK (Cont...)



9M- AZK (Cont...)

