



AIRCRAFT ACCIDENT FINAL REPORT
A 08/22P
Air Accidents Investigation Bureau (AAIB)
Ministry of Transport Malaysia

Airbus Helicopter AS355 F2 Registration 9M-SSW
in Brinchang, Perak, Malaysia
on the 26 October 2022



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FINAL REPORT A 08/22P

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

ACCIDENT REPORT NO.: A 08/22

OPERATOR : LAYANG LAYANG AEROSPACE SDN BHD
AIRCRAFT TYPE : AIRBUS HELICOPTERS AS355 F2
NATIONALITY OF AIRCRAFT : MALAYSIA
REGISTRATION : 9M-SSW
PLACE OF OCCURRENCE : BRINCHANG, PERAK, MALAYSIA
DATE AND TIME : 26 OCTOBER 2022 AT 1303 LT

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 Accident 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 the Annex 13 to the Chicago Convention 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 Annex 13 paragraph 4.1, notification of the accident was sent out on 3 November 2022 to the French Accident Investigation Authority, the *Bureau d'Enquêtes et d'Analyses pour la Sécurité de l'Aviation Civile (BEA)*, France 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.

FINAL REPORT A 08/22P

TABLE OF CONTENTS

CHAPTER		TITLE	PAGE NO
		LIST OF APPENDICES	v
		ABBREVIATIONS	vi
		SYNOPSIS	1
1.0		FACTUAL INFORMATION	2
	1.1	History of the Flight	2
	1.2	Injuries to Persons	3
	1.3	Damage to Aircraft	4
	1.4	Other Damages	4
	1.5	Personal Information	4
	1.6	Aircraft Information	5
	1.7	Meteorological Information	6
	1.8	Aids to Navigation	7
	1.9	Communications	7
	1.10	Aerodrome Information	7
	1.11	Flight Recorders	8
	1.12	Wreckage and Impact Information	8
	1.13	Medical and Pathological Information	8
	1.14	Fire	8
	1.15	Survival Aspects	8
	1.16	Tests and Research	9
	1.17	Organisational and Management Information	9
	1.18	Additional Information	10
	1.19	Useful or Effective Investigation Techniques	10
2.0		ANALYSIS	10
3.0		CONCLUSIONS	12
4.0		SAFETY RECOMMENDATIONS	12
		APPENDIX A	A - 1
		APPENDIX B	B -1

FINAL REPORT A 08/22P

LIST OF APPENDICES

APPENDIX	TITLE
A	Damage Assessment and Injuries (Images On-Site)
B	Safety Bulletin Issued by Layang Layang Group

ABBREVIATIONS

AAIB	Air Accidents Investigation Bureau
AVTUR	Aviation Turbine
BEA	French Accident Investigation Authority
BOMBA	Fire and Rescue Department
CAAM	Civil Aviation Authority of Malaysia
CB	Cumulonimbus
ELT	Emergency Locator Transmitter
FDS	Flying Doctor Service
ICAO	International Civil Aviation Organisation
LT	Local Time
METAR	Meteorological Aerodrome Reports
MOR	Mandatory Occurrence Report
MRO	Maintenance Repair & Overhaul
POB	Persons on Board
RMP	Royal Malaysia Police
RT	Radio Telephony
VHF	Very High Frequency
WMKI	ICAO Code for Sultan Azlan Shah Airport, Ipoh
UTC	Universal Time Coordinated

FINAL REPORT A 08/22P

SYNOPSIS

On 26 October 2022, an Airbus Helicopter AS335 F2 from a local operator bearing registration 9M-SSW was involved in a crash into mountainous thick primary jungle near to the town of Brinchang in the state of Perak, Malaysia.

Although the aircraft was a total write-off, miraculously all six persons on board (POB) survived the accident. The AAIB Chief Inspector was notified within the hour and an investigation team was dispatched early the very next day.

1.0 FACTUAL INFORMATION

1.1 History of the Flight

It was an authorised Flying Doctor Service (FDS) tasking from WMKI – Hospital Tanjung Rambutan – Kampung Gawin – Hospital Tanjung Rambutan – WMKI. The start-up (0830 LT), take-off and the initial flight en-route to Kampung Gawin was uneventful.

On the return leg, the aircraft took-off from Kampung Gawin at 1241 LT for Hospital Tanjung Rambutan (Figure 1). Upon reaching the reporting point of Kampung Raja, the pilot observed heavy rain with embedded CB clouds and decided to deviate and track towards Brinchang where a clear opening between the cloud base and a mountain ridge was sighted.



Figure 1: Flight Path (Kg Gawin to Crash Site)

FINAL REPORT A 08/22P

The pilot planned to use this opening to head to lower ground and fly directly towards WMKI. However, according to the pilot, after the aircraft crossed the ridge, a sudden and severe continuous updraft was experienced which pushed the aircraft upwards. This was countered by control inputs of the pilot.

Nonetheless, during these corrective actions the pilot experienced another sudden gust of crosswind from the left which were followed by gusts of wind from multiple directions. At this stage, the pilot had applied all resources of power and controllability to no avail and drifted towards a jungle covered slope nearby.

After all efforts to control the aircraft had failed, the pilot's last resort was to force land the aircraft in as controlled a manner as possible into the tree canopy on the slope. The aircraft crash landed (1303 LT) onto the slope, somewhat cushioned by the tree canopy before coming to a rest on its right side against some trees, which prevented it from going any further downhill.

During the crash landing, three of the passengers seated in the rear of the cabin were ejected. Miraculously all six POB survived, albeit some with serious non-life-threatening injuries. After all the six POB had regrouped, applied whatever first-aid was available and assessed their situation. They managed to call for help and give their position as the crash site fortunately still had cellular phone signal coverage from the nearby town of Brinchang.

Two teams of rescuers comprising of personnel from the Malaysian Armed Forces, RMP, BOMBA, the Forestry Department and the Civil Defence arrived on site at 1545 LT. Four of the injured were able to make the hour-long journey out of the crash site on foot whilst another two had to be carried out on stretchers. The last survivor being safely evacuated by 2100 LT.

1.2 Injuries to Persons

As was stated earlier, all six POB survived, albeit some with serious non-life-threatening injuries. These injuries ranged from cuts and bruises to fractures and dislocations.

FINAL REPORT A 08/22P

Injuries	Crew	Passengers
Fatal	-	-
Serious	1	3
Minor / None	-	2

1.3 Damage to Aircraft

Refer to **Appendix A** for images of damage to the aircraft on-site. There was no detailed Damage Assessment Report from the relevant MRO due to difficulty in accessing the crash site. The site is on a mountainous steep slope covered in primary jungle and the only access from the nearest road is an hour's hike through mountainous terrain.

Salvage of the aircraft was not an option and it was decided to leave the wreckage in situ.

1.4 Other Damages

Apart from a few trees having their branches sheared off due to the impact with the rotor blades there was no other visible damage to the environment. The aircraft fuel tank remained intact and there was no smell of AVTUR at all at the crash site. There was no post-impact fire.

1.5 Personnel Information

The occupants of 9M-SSW comprised one pilot and five passengers. The passengers were personnel from the FDS based in Hospital Tanjung Rambutan. There were one doctor with two nurses (both female) and two male medical assistants.

FINAL REPORT A 08/22P

1.5.1 Pilot

Nationality	Malaysia
Age	43
Gender	Male
License Type	CPL No. 6610/H
License Validity	31 December 2022
Medical Certificate Validity	31 December 2022
Aircraft Rating	AS355
Instructor Rating	Nil
Certificate of Test Due	30 June 2023
Flying Hours	Total: 1,951.3 hrs Type: 248.5 hrs

1.5.2 Passengers

Nationality	Malaysia (All)
Ages	32 – 48 years
Gender	3 Female and 2 Male

1.6 Aircraft Information

The helicopter is owned and operated by Layang Layang Aerospace Sdn Bhd, a local regional charter airline based in Sabah, Malaysia.

Aircraft Type	AS355 F2
Manufacturer	Airbus Helicopters

FINAL REPORT A 08/22P

Registration	9M-SSW
Serial No.	5467
C of A Issued	21 October 2022
C of A Validity	20 October 2023
C of R Issued	5 August 2020
C of R Expiry	4 August 2023

1.7 Meteorological Information

The actual weather at the time of the accident can be assessed in the photographs taken by one of the passengers just minutes prior to the accident (Figures 2 and 3). In the first photograph, a clear patch which the pilot was going for can be clearly seen. However, in this kind of situation, the weather changes very quickly and what may look like a clear area can quickly be covered up.



Figure 2: Photograph Taken by Passenger Just Prior the Crash



Figure 3: Photograph Taken by Passenger Just Prior the Crash

As can be seen from the photographs, the sky was overcast with no direct sunlight visible. The helicopter was flying in a valley with most of the mountain ridges covered by CB cloud with heavy rain in certain areas.

1.8 Aids to Navigation

Not applicable.

1.9 Communications

The last radio call by the pilot was over VHF at 1247 LT to Ipoh Tower indicating that he had reached Brinchang. No distress calls were made over the RT. Information about the accident was relayed to the authorities by the pilot using a mobile phone from the crash site.

1.10 Aerodrome Information

Not applicable.

1.11 Flight Recorders

The Airbus Helicopters AS355 F2 was not equipped with flight recorders.

1.12 Wreckage and Impact Information

A visual assessment at the crash site revealed that 9M-SSW descended nearly vertically through the jungle canopy. This was ascertained by its descent through and damage to nearby trees.

After the aircraft impacted the steep jungle slope it rolled over a few times before coming to a rest against some trees which prevented it from going further downhill **(Appendix A)**.

1.13 Medical and Pathological Information

All the occupants of 9M-SSW were sent immediately to the nearest hospital to address their injuries before being later transferred to Raja Permaisuri Bainun Hospital in Ipoh which had better facilities.

Their injuries ranged from cuts requiring stitches and bruises to bone fractures and dislocations. A nurse with a dislocated femur was the most serious injury.

1.14 Fire

There was no post-impact fire.

1.15 Survival Aspects

The doctor and two nurses seated in the rear of the aircraft closer to the right-hand aft sliding door were ejected from the aircraft. Although, when questioned, all three stated that they were wearing their safety belts, there are doubts.

FINAL REPORT A 08/22P

The medical assistant seated in the rear nearest to the left-hand sliding door, the other medical assistant seated in front and the pilot all stayed with the aircraft until it came to a rest. All three were wearing their safety belts and egressed through the broken front windshield.

Only the front occupants had cuts and bruises. Those seated in the rear, other than cuts and bruises, had in addition some kind of fracture or dislocation.

Also, of interest, is that 9M-SSW's fuel tank survived the impact intact. There were no fuel leakages which could have led to a postimpact fire.

Interestingly, 9M-SSW's ELT did not activate on impact. The pilot was also unable to manually activate it due to the position of the aircraft lying on its right side.

1.16 Tests and Research

Investigations reveal that the aircraft was in perfect working order on that fateful day and did not contribute to the accident.

1.17 Organisational and Management Information

The operator of the helicopter, Layang Layang Aerospace Sdn Bhd, submitted an MOR immediately after the accident which contained a Safety Bulletin which was disseminated to all of their pilots. The contents of this bulletin are very relevant to the accident and can be read in **Appendix B**. It will be discussed in further detail in the analysis section of this report.

Operator Name	Layang Layang Aerospace Sdn Bhd
AOC No	AOC 5
AOC Issuance Date	24 December 2021
AOC Expiry Date	31 December 2022
AOC Issuing Authority	CAAM

1.18 Additional Information

Nil.

1.19 Useful or Effective Investigation Techniques

The AAIB Investigators were helped tremendously by the RMP Team from Brinchang who were specially trained in Mountain Rescue Techniques. They managed to locate the aircraft quickly and were very helpful during the on-site investigations.

2.0 ANALYSIS

2.1 Mountain Flying in Adverse Weather Conditions

The MOR submitted by the operator and the attached Safety Bulletin cannot overstate the importance of knowledge and experience on the ability of a pilot to 'read' the environment when operating in the mountains especially during bad weather.

Strong winds, updrafts and downdrafts caused by the shape of the terrain adversely affects the controllability of the aircraft. Whilst fog, clouds and rain affect forward visibility and makes matters even worse when trying to navigate around high ground. Sound decision making based on proper risk assessment and good judgement will be required of any pilot operating in these environments.

A key principle to safe flying in this environment is to be situationally aware at all times and above all, if in doubt, land and wait the weather out.

2.2 Get-Home Syndrome

Another danger which most pilots face is the Get Home Syndrome. That innate urge inside of us to complete the task which invariably leads us to take risks which we would not normally take. A precautionary landing to wait the weather out is usually dismissed out of the reluctance to face problems such as accommodation and food for the

FINAL REPORT A 08/22P

passengers or security and fuel for the aircraft if one is forced to spend the night in a forward location.

2.3 Accident Analysis

While the Get Home Syndrome may or may not have contributed to the accident, the risk assessment, judgement and decision making of the pilot could definitely be improved upon.

Spotting a clearing in the clouds above a ridge, he decided to cross it to head direct to WMKI and lower ground. Unfortunately, he was hit by an updraft and buffeted by strong winds after crossing the ridge which led to him having difficulty controlling the aircraft leading to the accident.

If he had read the wind correctly he would have known that he was on the lee side of the ridge and would have expected an updraft after crossing it. The METAR issued by WMKI at the time indicates that the general wind was from heading 190° (which was the rough heading he was on while crossing the ridge).

METEOROLOGICAL INFORMATION RECORD FORM
METAR/SPECI * WMKI (TIME) 0500 UTC
(WIND) 190/05 knots Gusting Knots
(DIRECTION VARIATION) V
(VISIBILITY) 710
(minimum) (maximum)
(WEATHER) DR - NW
(CLOUD) F017 CB N00
SKY OBSCURED 8020 feet
CB DIRECTION
(TEMP/DEW POINT) 30, 24 (HUMIDITY)
QNH 1011 Hpa 29. inches
QFER RWY () RWY ()
(TREND)
NOTE 1. * delete as appropriate
2. Information above dotted lines may or may not be reported by MET.

Figure 4: METAR WMKI at 0500 UTC

FINAL REPORT A 08/22P

The narrative above and also that of the synopsis at the beginning of the report is from the pilot himself. However, after interviewing the passengers a different narrative emerged.

According to the medical assistant seated in front beside the pilot, after crossing the ridge forward visibility started to reduce to the point that the aircraft was now totally engulfed in the clouds. Initially he could still maintain sight of the green trees below but now he could only see the white of the clouds. This was corroborated by one of the nurses.

The pilot then decided to turn back to his right. During the turn however, the medical assistant started to see some greenery before he sensed that the tail rotor was the first to contact the trees before they crashed.

3.0 CONCLUSION

Whatever narrative one chooses to believe, the main cause of the accident was due to the poor decision making by the pilot. His risk assessment capabilities and judgement need to be improved upon in order not to take unnecessary risks.

4.0 SAFETY RECOMMENDATIONS

- 4.1. The operator of the aircraft is to provide a recurrent training programme concerning mountain flying and also flying in adverse weather conditions for the pilot in question as soon as possible.
- 4.2. CAAM is to monitor the operator to ensure that this programme is done in accordance with the latest syllabus.

INVESTIGATOR IN-CHARGE

Air Accident Investigation Bureau

Ministry of Transport Malaysia

DAMAGE ASSESSMENT AND INJURIES (IMAGES ON-SITE)





FINAL REPORT A 08/22P





SAFETY BULLETIN ISSUED BY LAYANG LAYANG GROUP

 Layang Layang Group <i>Layang Layang Aerospace • Layang Layang Flying Academy</i>	SAFETY BULLETIN	
	FORM NO	LLG/SMS/FORM/310
	ISSUE AND REVISION	Issue 2 Revision 2

SAFETY BULLETIN

REFERENCE : Layang Layang Aerospace (Corporate) 05_2022
 Layang Layang Aerospace (QSAD) N/A
 Layang Layang Flying Academy N/A

ATTENTION : To All Layang Layang Aerospace Pilots

FROM : Layang Layang Aerospace Safety Department

DATE : 26 October 2022

SUBJECT : **9M-SSW CRASH LANDING ACCIDENT**

This Safety Bulletin is to disseminate all information and safety reminder on the accident happened to helicopter 9M-SSW crashed at Tanah Rata, Cameron Highland.

1.0 Synopsis

Helicopter AS355F2 registration 9M-SSW is operating Flying Doctor Service (FDS) tasking from Kampung Gawin, Gua Musang Kelantan to Tanjung Rambutan, Perak. ERP activated when received confirmation on the accident happened. One (1) pilot and five (5) passengers survived with minor injury. Root cause and contributing factors is under investigation and to be determine.

2.0 Preventive Control

Risk Management is an imperative factor for every flight. Pilots are to be more vigilant and check weather (Departure, enroute, destination) before flight especially towards the end of the year monsoon season. This is to avoid any mishaps pertaining to the safety of the flight.

3.0 Follow up Action



The recommended preventions and solutions are to address the following:

- a) Improve awareness of or competence in procedures for recovery from unusual attitudes through recurrent training
- b) Increase situational awareness
- c) Weather avoidance techniques and procedures
- d) Proficient in Standard Operating and Non-normal procedures

4.0 Summary

While it is not possible to envisage every scenario that can lead to a loss of control in flight, studies have shown that maintaining good situation awareness and adhering to all prescribed recommended procedures will in general assure the safe conduct of flight.

Thank you,

	
Captain Irwin Menezes <i>Flight Operation Manager</i>	Captain Kam Chung Pei <i>Safety Manager</i>