



AIRCRAFT ACCIDENT FINAL REPORT
A 03/18
Air Accidents Investigation Bureau (AAIB)
Ministry of Transport

Accident Involving an Eurocopter AS355N

Registration 9M-PHJ

at Sibu Airport (WBG), Sarawak, Malaysia

on 13 March 2018



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Issued on 13 March 2019

FINAL REPORT A 03/18

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

ACCIDENT REPORT NO. : A 03/18

OWNER / OPERATOR : PGU, PDRM
AIRCRAFT TYPE : EUROCOPTER AS355N
NATIONALITY : MALAYSIA
REGISTRATION : 9M-PHJ
**PLACE OF OCCURRENCE: SIBU AIRPORT (WBGs), SARAWAK,
MALAYSIA**
DATE AND TIME : 13 MARCH 2018 AT 1720LT

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 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.

TABLE OF CONTENTS

CHAPTER	PARA	TITLE	PAGE
		TITLE PAGE	i
		INTRODUCTION	iii
		TABLE OF CONTENTS	iv
		APPENDICES	v
		ABBREVIATIONS	vi
		SYNOPSIS	1
1.0		FACTUAL INFORMATION	
	1.1	History of the Flight	1
	1.2	Injuries to Persons	2
	1.3	Damage to Aircraft	
	1.4	Other Damages	
	1.5	Personal Information	
	1.6	Aircraft Information	3
	1.7	Meteorological Information	
	1.8	Aids to Navigation	
	1.9	Communications	
	1.10	Aerodrome Information	4
	1.11	Flight Recorders	
	1.12	Wreckage and Impact Information	
	1.13	Medical and Pathological Information	
	1.14	Fire	
	1.15	Survival Aspects	5
	1.16	Tests and Research	
	1.17	Organisational and Management Information	
	1.18	Additional Information	
	1.19	Useful or Effective Investigation Techniques	
2.0		ANALYSIS	5
3.0		CONCLUSIONS	6
4.0		SAFETY RECOMMENDATIONS	6

FINAL REPORT A 03/18

APPENDICES

APPENDIX	TITLE	PAGE
A	INITIAL DAMAGE ASSESSMENT REPORT	A-1 to 12

ABBREVIATIONS

AAIB	Air Accidents Investigation Bureau
BEA	French Accident Investigation Authority
CAAM	Civil Aviation Authority of Malaysia
CVR	Cockpit Voice Recorder
FDR	Flight Data Recorder
ICAO	International Civil Aviation Organisation
LT	Local Time
MRO	Maintenance, Repair & Overhaul
OEI	One Engine Inoperative
PDRM	Royal Malaysia Police
PGU	Air Operations Force
PIC	Pilot-in-Command
POB	Persons on Board
RT	Radio Telephony
UTC	Coordinated Universal Time
WBGS	ICAO Code for Sibu Airport, Sarawak, Malaysia

SYNOPSIS

On 13 March 2018, a Eurocopter AS355N bearing the registration 9M-PHJ was involved in an accident at Sibu Airport (WBGs), Sarawak, Malaysia. The aircraft had 2 POB.

9M-PHJ had just lifted off from Runway 13 for training in Helipad Procedures. The exercise being carried out at the time was a practice rejected take-off at 50 ft with a simulated One Engine Inoperative (OEI). Unfortunately the recovery did not go as planned with the aircraft experiencing a very hard landing.

The AAIB Chief Inspector was immediately notified and an investigation team was dispatched.

1.0 FACTUAL INFORMATION

1.1 History of the Flight

On Tuesday, 13 March 2018, the ill-fated helicopter was undergoing a training sortie for a captaincy upgrade at Sibu Airport. The PIC (a qualified instructor) was seated on the left whilst the pilot undergoing training was seated on the right. The sortie that day was for Helipad Procedures with the PIC simulating a helipad at Threshold Runway 13 for take-off and landing exercises.

After two landings and one take-off the PIC decided to do some rejected take-offs with a simulated OEI. The first rejected take-off at 15 ft was uneventful. The second one at 50 ft however, with the PIC in control and the trainee following through, resulted in a very hard landing.

According to the PIC, during the recovery technique of cushioning the aircraft by applying the collective to arrest the rate of descent just before touch-down, the aircraft did not respond as it was expected to do. The rate of descent remained high until impact was made with the tarmac.

FINAL REPORT A 03/18

After checking that everyone was all right and that the aircraft engine parameters were normal, the PIC decided to call-off the training. He then informed the tower of their hard landing before requesting to taxi back to the dispersal to check the aircraft more thoroughly for damage. Shut-down was carried out uneventfully.

1.2 Injuries to Persons

Both pilots on board the aircraft did not suffer any injuries.

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

1.3 Damage to Aircraft

An initial damage assessment report by the responsible MRO can be read in **APPENDIX A**.

1.4 Other Damages

Apart from the impact marks of the helicopter's skids on the surface of the runway, no damage to other property was recorded.

1.5 Personnel Information

The PIC (seated in the left-hand seat) of the helicopter that day was a qualified instructor whilst the right-hand seat was occupied by a pilot undergoing a captaincy upgrade.

1.6 Aircraft Information

The aircraft was owned and operated by the Air Operations Force of the Royal Malaysia Police.

Aircraft Type	Eurocopter AS355N
Manufacturer	Airbus Helicopters
Registration	9M-PHJ
Serial No.	5628

1.7 Meteorological Information

The weather on that fateful day was clear with visibility of more than 10km. Wind conditions were at 280°/4kts.

1.8 Aids to Navigation

Not applicable.

1.9 Communications

Information about the accident was relayed immediately to the tower over the RT followed by a request to taxi back to the dispersal.

1.10 Aerodrome Information

Not applicable.

1.11 **Flight Recorders**

The Eurocopter AS355N 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 two sets of marks on the tarmac made by the skids of 9M-PHJ indicating that there was some forward movement on impact and that the aircraft bounced once. An initial damage assessment is available at **APPENDIX A**.

1.13 **Medical and Pathological Information**

As stated earlier, both the pilots did not suffer any injuries.

1.14 **Fire**

There was no post-impact fire. The fuel cell of the aircraft had also remained intact.

1.15 **Survival Aspects**

Although the helicopter had experienced a hard landing, the crashworthy stroking seats helped to absorb and dissipate the energy produced thus safeguarding the pilots from injury.

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.

1.18 Additional Information

Nil.

1.19 Useful or Effective Investigation Techniques

Nil.

2.0 ANALYSIS

2.1 According to the PIC, he had done numerous rejected take-off exercises before this without any problems. His main reason for the hard landing was that during the cushioning phase of the recovery technique, the aircraft did not respond as was expected by reducing its rate of descent.

2.2 In helicopter Principles of Flight, all exercises should as much as possible be carried out into wind to gain the best aerodynamic effects from the aircraft. It must be noted that the exercise was carried out on Runway 13 and that the wind on that day, according to the MRO's Initial Investigation Report

(APPENDIX A), was at 280°/4kts meaning that the aircraft was experiencing a tail-wind component.

2.3 This would have adversely affected the aircraft's aerodynamic efficiency with respect to the recovery techniques of flaring and cushioning. Hence, a lesser effect in the reduction of the rate of descent when applying the collective to cushion the touch-down.

3.0 CONCLUSION

A lapse in judgement on the part of the PIC with regards to the wind direction contributed to this accident.

This accident is classified as an Abnormal Runway Contact (ARC).

4.0 SAFETY RECOMMENDATIONS

The helicopter operator in this case is required to impress upon all their pilots of the need to diligently observe basic airmanship points when carrying out exercises.

INVESTIGATOR-IN-CHARGE

Air Accidents Investigation Bureau

Ministry of Transport

13 March 2019



AIRCRAFT INITIAL/COMPLETE INVESTIGATION REPORT			
A. REPORTING			
Reported (Name):	Shahar Dato' Hj Khalid	Phone No:	+603.7846.9015
Title/Position/Trade:	Quality Assurance Manager	Fax No:	+603.7846.9016
B. AIRCRAFT			
Type:	Eurocopter AS355N	Registration:	9M-PHJ
MSN:	5628	Date Manufacture:	March 1997
Owner/Operator:	Pasukan Gerakan Udara, Polis Diraja Malaysia.	Address:	Kementerian Dalam Negeri, 50400 Kuala Lumpur.
C. INCIDENT/ACCIDENT/OCCURRENCE			
Date:	13 March 2018	Venue:	SIBU Airport, Sarawak.
Aircraft Total Hours:	6719:00	IATA/ICAO Code Airport:	SBW/WBGS
Time:	17:20 pm		
D. MAINTENANCE RELEASED			
Type Released:	25 Flight Hours/150 Torque Cycle		
Date:	08 March 2018	Hours:	6709:15
Landing:	NIL	Cycle:	NIL
Due:	6734:15		
E. PERSON			
No on Board:	Two	No Casualty:	NONE
F. FLIGHT AND WEATHER CONDITION			
Flight No:	Police Chop 9		
Station From:	Sibu Town (IPD Sibu)	Station To:	WBGS
Weather Condition:	Clear Day	Wind:	280° speed = 4kts
Visibility:	>10 km	OAT:	29°C
G. CHRONOLOGICAL OF INCIDENT/ACCIDENT/OCCURRENCE			
<p>1. Aircraft was commencing its Pilot Training at Runaway 13. Clearance was acknowledged by CAAM Sibu of their training attention. And after that Pilot request CAAM Sibu clearance to taxi aircraft to Parking Bay 18 and assurance of FOD. CAAM Sibu gives the clearance and the aircraft was taxi to Bay 18 and parked (Resources are from CAAM Sibu personnel). On Pilot side after parking he notice that the aircraft had occurred a Hard Landing with cross tube bend and crack at the canopy.</p> <p>2. Engineering Personnel (Engineer) was on his way from IPD Sibu to Sibu Airport when he received a text message requesting him to be at Sibu Airport immediately. As he being at the aircraft, he saw from outside the canopy was cracked and the cross tube was bend. He carried carryout the process of Hard Landing Inspection in accordance to MET 05-53-00-605 at that particular time and condition.</p> <p>3. The SAS QA arrives the next day and goes through the process of inspection.</p>			



4. After the aircraft and documentation inspection, SAS QA and SAS Maintenance personnel approached CAAM Sibul for information pertaining to the interaction of the PGU Pilot and CAAM Sibul together with the information pertaining to the weather during that incident period. The CAAM Sibul only being acknowledge of the Hard Landing after the Pilot reported in their "Aircraft Occurrence Report" given to them.
5. The next day, SAS QA faxed the CAAM Occurrence report "DCA Borang 9 - OR" to CAAM Flight Operation.

H. DAMAGED REPORT

1. Inside the Cockpit - both top LH and RH above crew door on the canopy side was cracked (as photos 01)
2. Inside the Cockpit – Center overhead console, LH side cracked (as photo 02)
3. Sliding door both side LH and RH resistance in movement during opening and closing the door due to canopy has dropped.
4. Outside below cockpit – at the control area rods the LH and RH underfloor beam bend (as photo 03)
5. LH and RH damper/absorber for Rear Cross Tube the chrome plunger bend (as photo 04)
6. Cowling/shroud at area around LH and RH Cross Tube mounting were damaged (as photo 05)
7. Both LH and RH skid were bend outwards (as photo 06)
8. All 4 speaker screws sheared and speaker dangling with only holding by it wiring only.
9. Aircraft is tilting to right side due to heavy impact on RH skid on ground before LH skid touches the ground.
10. Pull Rivet at the skid (as photo 07)
11. DECU reading nil defect and the rest of the aircraft (main rotor, tail rotor, main gearbox, spider, tail boom) are comfortably reliable.

I. CONCLUSION

1. Aircraft is unserviceable condition.
2. Need to inspect further on aircraft especially the structure after accessible (preferable at Kuching Base)
3. Aircraft can be repair. Damaged criticality can only be identifying after thorough inspection on the aircraft we made.
4. Attached are the photos mentioned, DCA AOR raised by PGU Pilot and DCA Borang 9 - OR.

J. VERIFICATION

Name: Shahar Dato' Hj Khalid
Position: Quality Assurance Manager
Date: 19 March 2018



PHOTO 01 - Left Hand Side Top Canopy



PHOTO 01 – Right Hand Side Top Canopy

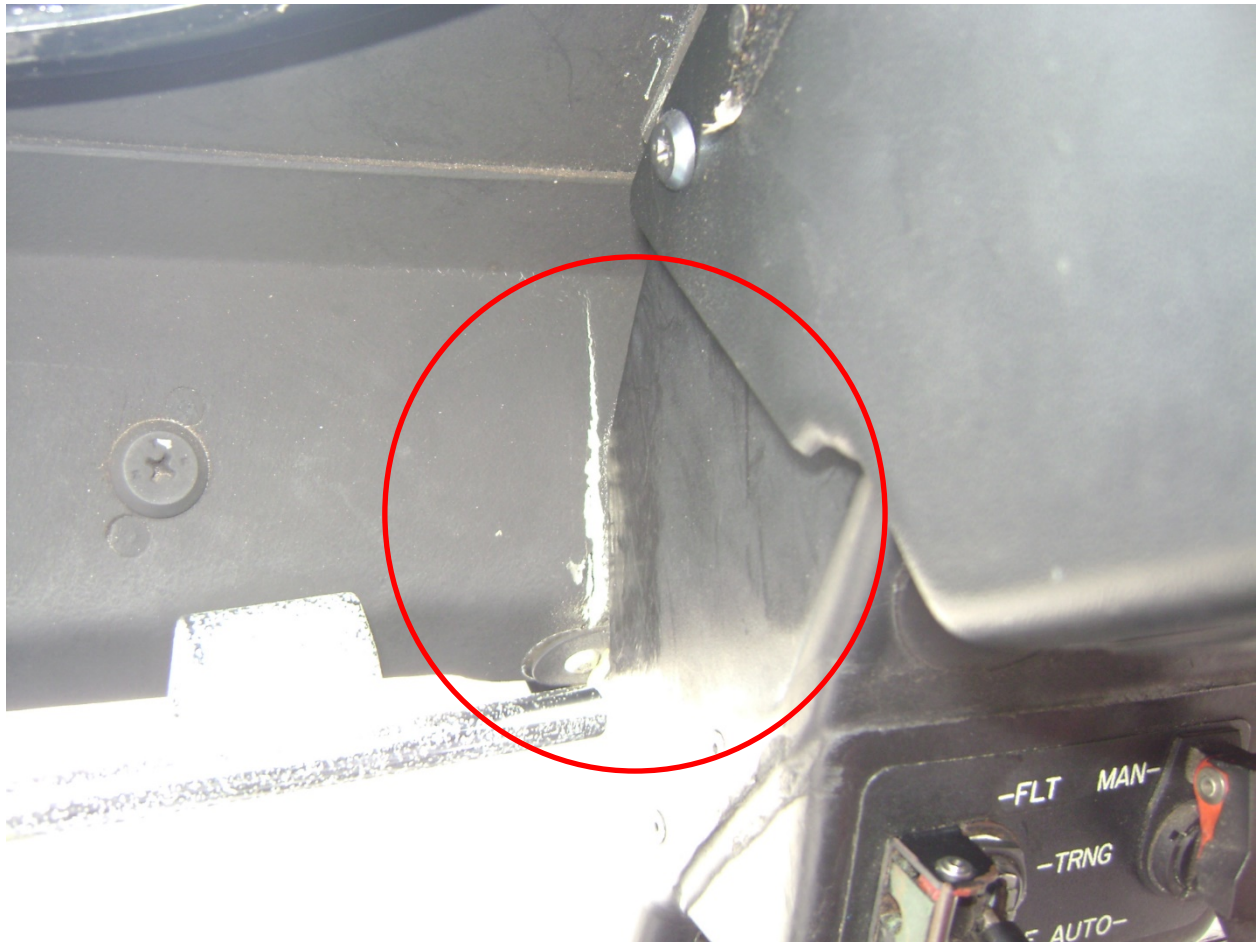


PHOTO 02 – Left Hand Side Center Console Top Canopy



PHOTO 03 – Underfloor Beam

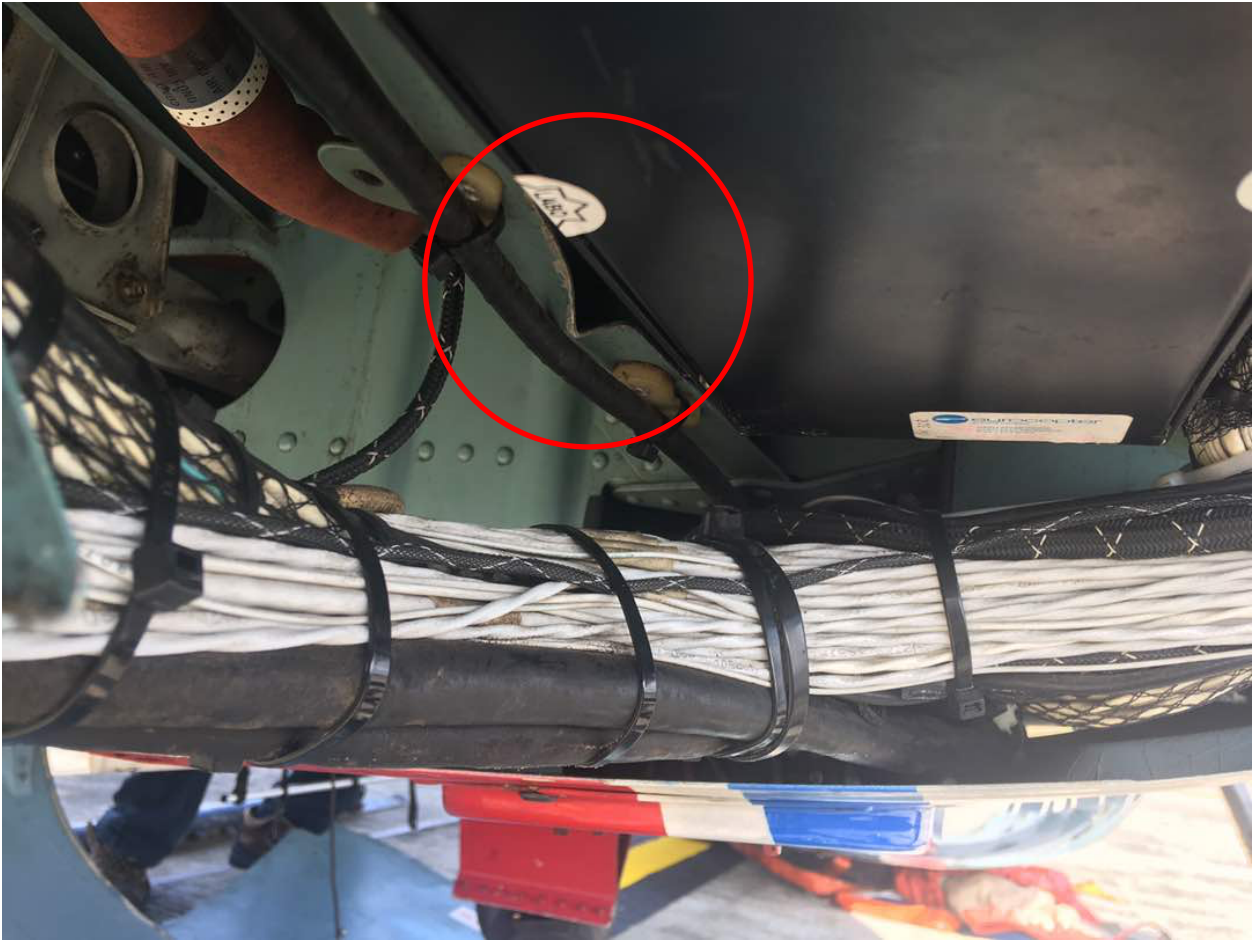


PHOTO 03 – Underfloor Beam



PHOTO 04 – Left Hand Rear Cross Tube Damper/Absorber



PHOTO 04 – Right Hand Rear Cross Tube Damper/Absorber



PHOTO 05 – Left Hand Front Skid Cowling



PHOTO 06 - Skid



PHOTO 07 – Skid Pulled Rivet