



**KOMITE NASIONAL KESELAMATAN TRANSPORTASI
REPUBLIC OF INDONESIA**

PRELIMINARY

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Aircraft Accident Investigation Report

PT. Eastindo Services

MBB BK-117 D3; PK-RGH

Mantewe, Tanah Bumbu, South Kalimantan

Republic of Indonesia

1 September 2025

2025

This Preliminary Report is published by the *Komite Nasional Keselamatan Transportasi* (KNKT), Transportation Building, 3rd Floor, Jalan Medan Merdeka Timur No. 5 Jakarta 10110, Indonesia.

The report is the result of an investigation conducted by the KNKT in accordance with Annex 13 to the Convention on International Civil Aviation, the Indonesian Aviation Act (UU No. 1/2009), and Government Regulation (PP No. 62/2013).

The preliminary report comprises factual information collected up to the date of its publication. This report does not include analysis and conclusions.

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Jakarta, 13 October 2025
**KOMITE NASIONAL
KESELAMATAN TRANSPORTASI
CHAIRMAN**



SOERJANTO TJAHJONO

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ABBREVIATIONS AND DEFINITIONS

ACO	: Aeronautical Communication Officer
ADS-B	: Automatic Dependent Surveillance-Broadcast
AFIS	: Aerodrome Flight Information Service
AFIZ	: Aerodrome Flight Information Zone
AMSL	: Above Mean Sea Level
AOC	: Air Operator Certificate
ARB	: Area Reference Booklet
ARP	: Aerodrome Reference Point
ATS	: Air Traffic Service
ATSB	: Australian Transport Safety Bureau
BASARNAS	: <i>Badan Nasional Pencarian dan Pertolongan</i> (the Indonesian Search and Rescue Agency)
BEA	: <i>Bureau d'enquêtes et d'analyses pour la sécurité de l'aviation civile</i> (the France Independent Investigation Authority)
BFU	: <i>Bundesstelle für Flugunfalluntersuchung</i> (the German Independent Investigation Authority)
BMKG	: <i>Badan, Meteorologi, Klimatologi dan Geofisika</i> (the Bureau of Meteorology, Climatology and Geophysics of Indonesia)
BPBD	: <i>Badan Penanggulangan Bencana Daerah</i> (the Indonesia Regional Disaster Management Agency)
CASR	: Civil Aviation Safety Regulations
C of A	: Certificate of Airworthiness
C of R	: Certificate of Registration
CPL	: Commercial Pilot License
CVFDR	: Cockpit Voice Flight Data Recorder
FH	: Flight Hour
FIC	: Flight Information Center
FOO	: Flight Operation Officer
HF	: High Frequency
HLO	: Helicopter Landing Officer
HTAWS	: Helicopter Terrain Awareness and Warning System
KNKT	: <i>Komite Nasional Keselamatan Transportasi</i> (the Indonesia Independent Investigation Authority)
LT	: Local Time
MFD	: Multi-Function Display
PIC	: Pilot in Command

SAR	: Search and Rescue
SOP	: Standard Operating Procedures
SVS	: Synthetic Vision System
TMA	: Terminal Control Area
UTC	: Universal Time Coordinate
VFR	: Visual Flight Rules
VHF	: Very High Frequency

SYNOPSIS

On 1 September 2025, a helicopter registered PK-RGH operated by PT. Eastindo Services was scheduled to conduct an unscheduled passenger flight from Gusti Sjamsir Alam Airport (WAOK), Kotabaru, to Tjilik Riwut Airport (WAGG), Palangka Raya, under Visual Flight Rules (VFR). On board were one pilot, one engineer, and six passengers.

Prior to departure, the engine fire bottle indicator illuminated in the cockpit. The pilot shut down the engine, and all occupants disembarked. Following inspection by the engineer, no evidence of fire or extinguisher discharge was found. The electrical connector of the fire detection system was cleaned, and after an engine restart, the warning light extinguished.

The helicopter then departed at 0045 UTC (0845 LT) for Palangka Raya. The pilot reported to Sjamsir AFIS that the estimated time of arrival was 1010 LT. The ACO instructed the pilot to report “10 minutes out.” At 0854 LT, the pilot reported accordingly, and was advised to establish contact with Banjarmasin APP. At 0858 LT, the pilot informed Sjamsir Alam Info that communication with Banjarmasin APP could not be established. The ACO then instructed the pilot to report when 30 NM from Kotabaru, which the pilot acknowledged. This was the last recorded communication from PK-RGH.

After losing contact, the ACO notified Banjarmasin APP, which then escalated the situation to BASARNAS. The uncertainty phase (INCERFA) was declared at 1109 LT and the distress phase (DETRESFA) at 1242 UTC. The SAR operation commenced at 1320 LT.

The last ADS-B data, recorded at 0903 LT, showed the helicopter at an altitude of 2,725 ft with a groundspeed of 118 knots on a heading of 295°, at coordinates 03°05'14.10" S, 115°37'56.40" E.

On 3 September 2025, the wreckage of PK-RGH was found on a ridgeline approximately 600 meters from the last ADS-B position, at an elevation of 2,200 ft, at coordinates 03°05'06.00" S, 115°37'39.70" E. The main fuselage was destroyed by post-impact fire, and the tail section was located separately uphill at coordinates 03°05'06.71" S, 115°37'42.62" E at an elevation of 2,400 ft. All eight occupants sustained fatal injuries.

The KNKT acknowledged the safety action taken by the aircraft operator was relevant in improving safety; however, in this preliminary investigation, there still remain safety issues that need to be considered. Therefore, the KNKT issues the following safety recommendations addressed to the aircraft operator and ATS provider.

The investigation is continuing, Should any further relevant safety issues emerge during the course of the investigation, KNKT will immediately bring the issues to the attention of the relevant parties and publish as required.

1 FACTUAL INFORMATION

1.1 History of the Flight

On 31 August 2025, at 0243 UTC (0643 LT)¹, an Airbus Helicopters MBB BK117 D-3, registered PK-RGH, departed from Kariangau Hangar, Balikpapan, for an unscheduled passenger flight, to Gusti Sjamsir Alam Airport (WAOK), Kotabaru². On board were one pilot, one engineer, and six passengers. The aircraft landed at Kotabaru at 0807 LT. At 0850 LT, the aircraft departed from Kotabaru for a local flight on the 181 radial, approximately 36 nm from the airport, carrying the same occupants. The aircraft landed at 0940 LT.

On 1 September 2025, the aircraft was planned for another unscheduled passenger flight from Kotabaru to Tjilik Riwut Airport (WAGG), Palangka Raya³, operating under Visual Flight Rules (VFR), with the same occupants on board as the previous flights.

Prior to departure, fire bottle indicator illuminated in the cockpit. The pilot shut down the engine, and all occupants disembarked. The engineer opened the engine cowling and inspected the fire detection system. No evidence of fire was found, nor was there any indication of fire extinguisher discharge in the engine bay. The electrical connector of the fire detection system was then cleaned with contact cleaner before the cowling was reinstalled. Following a subsequent engine start, the fire warning no longer appeared. All passengers re-boarded, and the helicopter was prepared for flight.

At 0845 LT, on daylight condition, PK-RGH departed Kotabaru for Palangka Raya and advised the Aeronautical Communication Officer (ACO) on Sjamsir Alam Flight Information Service unit (Sjamsir Alam Info)⁴ that the estimated time of arrival was 1010 LT. The ACO instructed the pilot to report “10 minutes out” after departure.

At 0854 LT, the pilot reported “10 minutes out” to the Sjamsir Alam Info, who then advised the pilot to contact air traffic controller on Banjarmasin Approach Control unit (Banjarmasin APP)⁵.

At 0858 LT, the pilot reported being unable to establish contact with Banjarmasin APP and informed the Sjamsir Alam Info accordingly. The Sjamsir Alam Info then advised the pilot to report at 30 NM from Kotabaru. The pilot acknowledged, and this was the last recorded transmission from PK-RGH with the Sjamsir Alam Info.

¹ The 24-hours clock in Local Time (LT) is used in this report to describe the time as specific events occurred. Local Time (LT) is Universal Time Coordinated (UTC)+8 hours.

² Gusti Sjamsir Alam Airport (WAOK), Kotabaru will be named as Kotabaru for the purpose of this report.

³ Tjilik Riwut Airport (WAGG), Palangka Raya will be named as Palangka Raya for the purpose of this report.

⁴ ACO on Sjamsir Alam Flight Information Service unit will be named as Sjamsir Alam Info for the purpose of this report.

⁵ Air traffic controller on Banjarmasin Approach Control unit will be named as Banjarmasin APP for the purpose of this report.

After several unsuccessful attempts to establish further contact, the ACO notified Banjarmasin APP, which subsequently escalated the situation to the *Badan Nasional Pencarian dan Pertolongan* (the Indonesian Search and Rescue Agency/BASARNAS). The uncertainty phase (INCERFA) was declared at 1109 LT and the distress phase (DETRESFA) at 1242 UTC. At 1320 LT, the search and rescue (SAR) operation was officially initiated.

The operator reported that at 0901 LT, the aircraft transmitted its final position via Spidertracks⁶. At that time, the aircraft was at an altitude of 2,422 ft, flying at a speed of 117 knots, on a heading of 297°, and located at coordinates 3°6'54.58" S, 115°41'21.62" E.

The last recorded Automatic Dependent Surveillance-Broadcast (ADS-B)⁷ data, at 0903 LT, indicated the aircraft at an altitude of 2,725 ft with a groundspeed of 118 kt, on a heading of 295°, at coordinates 03°05'14.10" S, 115°37'56.40" E.

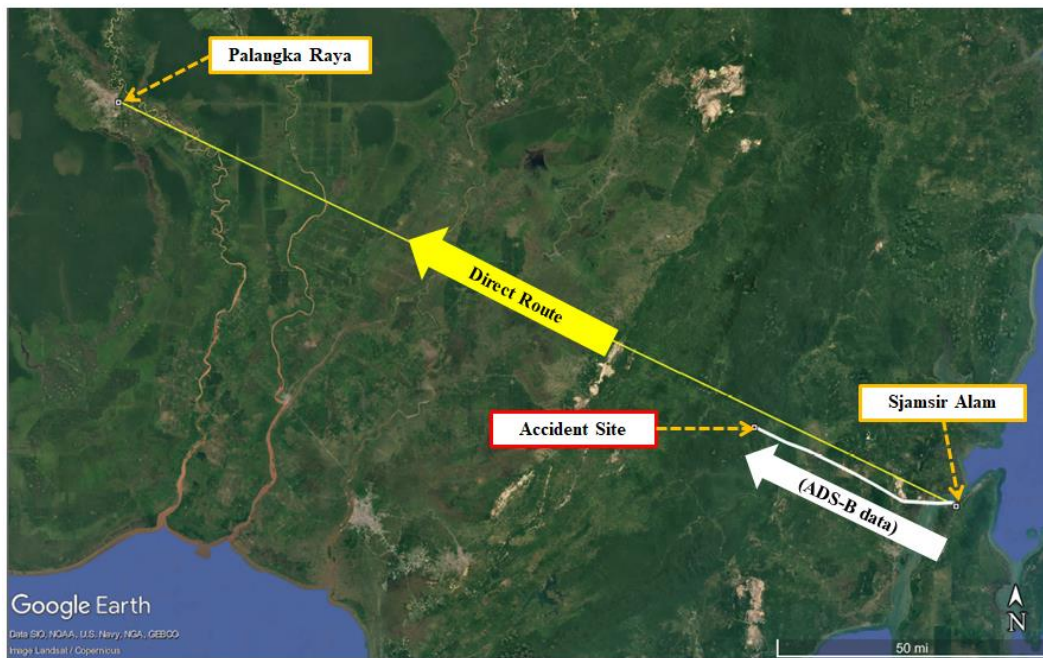


Figure 1: The flight route

After several days of search operations, on 3 September 2025, the wreckage of PK-RGH was located on a ridgeline approximately 600 meters from the last recorded ADS-B point, at an elevation of about 2,200 ft above mean sea level (AMSL). The aircraft came to rest on a heading of approximately 270°, at coordinates 03°05'06.00" S, 115°37'39.70" E. The tail section was found separately at coordinates 03°05'06.71" S, 115°37'42.62" E, at an elevation of approximately 2,400 ft AMSL.

The main body of the aircraft was destroyed by post-impact fire. All eight occupants sustained fatal injuries.

⁶ Spidertracks is a satellite-based aircraft tracking system that provides real-time position reporting and flight monitoring, primarily used for fleet management and flight safety support in remote areas where radar coverage is limited.

⁷ ADS is a surveillance technique in which aircraft automatically provide, via a data link, data derived from on-board navigation and position-fixing systems, including aircraft identification, four-dimensional position and additional data as appropriate. The ADS-B is a function on an aircraft or surface vehicle that broadcasts position, altitude, vector and other information for use by other aircraft, vehicles and by ground facilities.

1.2 Injuries to Persons

Injuries	Flight crew	Passengers	Total in Aircraft	Others
Fatal	1	7	8	-
Serious	-	-	-	-
Minor	-	-	-	-
None	-	-	-	-
TOTAL	1	7	8	-

The pilot, the engineer, and three passengers were of Indonesian nationality, while the remaining passengers included one Australian, one Indian, and one Brazilian national.

1.3 Damage to Aircraft

The aircraft was destroyed by post-impact fire.

1.4 Other Damage

Trees within an area of approximately 10 meters in diameter were burned.

1.5 Personnel Information

1.5.1 Pilot Information

The pilot was of Indonesian nationality and held a valid Commercial Pilot License (CPL) with a rotorcraft rating. The pilot also possessed a valid First-Class Medical Certificate with no medical limitations.

The pilot's recorded flying experience was as follows:

Total hours	: 2,573.8 flight hours
Total on type	: 220.48 flight hours
Last 90 days	: 36.19 flight hours
Last 30 days	: 8.48 flight hours
Last 7 days	: 2.23 flight hours
Last 24 hours	: 2.23 flight hours
This flight	: 18 minutes

1.6 Aircraft Information

1.6.1 General

On the day of the occurrence, the aircraft was airworthy when dispatched for the flight and operated within the weight and balance limit. The aircraft and engine specifications are as follows:

Aircraft Information

Registration	: PK-RGH
Type/Model	: MBB BK117 D-3
Manufacturer	: Airbus Helicopters, Germany
Year of Manufacture	: 2018
Serial Number	: 20,228
Total Flight Hours	: 1,555.98 hours
Total Flight Cycles	: 3,518 cycles

Engine Information

Type/Model	: Arriel 2E
Manufacturer	: Safran Helicopter Engines
Left Engine Serial Number	: 60,483
Right Engine Serial Number	: 60,484
Engine Total Time	: 1,557.28 hours (each)
Engine Total Cycles	: 3,519 cycles (each)

The last major inspection, an 800FH / 36M check, was performed on 22 June 2025 at 1,501.68 hours/ 3,374 cycles. The last minor inspection, consisting of a 50FH Airframe/ 25FH Engine check, was completed on 23 August 2025 at 1,550.93 hours/ 3,512 cycles.

1.6.2 Radio Communications

For air-to-ground voice communications, the aircraft was equipped with two Very High Frequency (VHF) units, Part Number 011-02282-A, bearing Serial Numbers 1ZA411470 and 1ZA411507. The aircraft was not equipped with a High Frequency (HF) radio.

1.6.3 Flight Navigation

An iPad provided in the aircraft was equipped with the Garmin Pilot⁸ application. The aircraft was also fitted with a Flight Stream 510, Part Number 011-03595-00 and Serial Number 402005397, which enabled wireless connectivity between the Garmin Pilot application and the aircraft's avionics system.

⁸ Garmin Pilot™ is a flight planning and navigation application which allows pilots to create and file flight plans, access weather and aeronautical information, and interface wirelessly with compatible avionics systems.

1.6.4 Collision Avoidance Systems

The aircraft was equipped with the Helionix avionics suite, which incorporates a digital map, a Synthetic Vision System (SVS), and a Helicopter Terrain Awareness and Warning System (HTAWS). These systems require aeronautical data compliant with ED-76/DO-200A standards.

The SVS provides a three-dimensional representation of the terrain ahead of the helicopter on the Multi-Function Display (MFD). The HTAWS generates aural and visual alerts for terrain and obstacle proximity.

1.7 Meteorological Information

Meteorological data were obtained from the *Badan Meteorologi, Klimatologi, dan Geofisika* (BMKG – Meteorology, Climatology, and Geophysical Agency of Indonesia). Figure 2 shows Himawari satellite imagery at 0900 LT (0100 UTC), indicating the presence of mid- to high-level clouds in the vicinity of the occurrence area. The purple circle in the figure indicates the vicinity of the accident site.

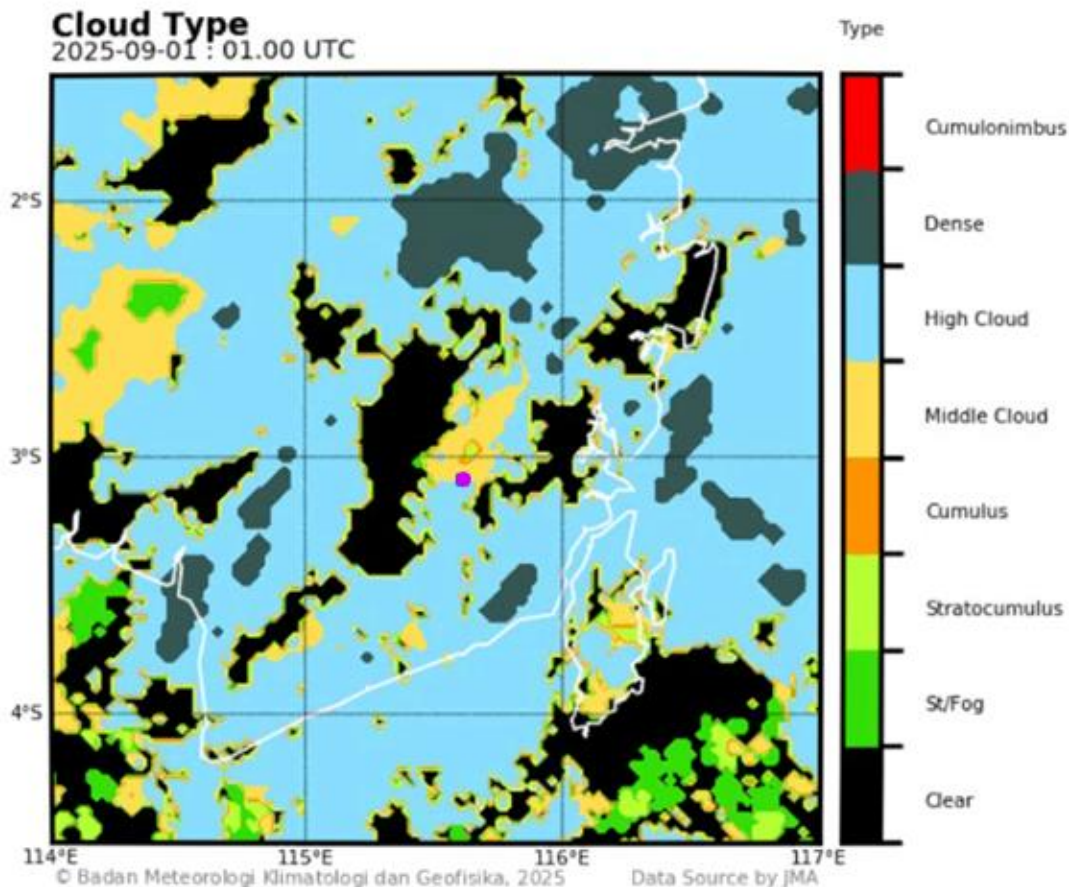


Figure 2: Satellite Imagery HCAI Cloud Type

1.8 Aids to Navigation

The operator did not maintain a published or approved route guide for flights between Kotabaru and Palangka Raya. The occurrence flight was the operator's first operation on this route.

For new routes such as this occurrence, the pilot usually created a flight plan using the Garmin Pilot application on the iPad. The flight plan was then transmitted to the aircraft's avionics system via the Garmin Flight Stream 510, serving as the primary navigation aid for the flight.

1.9 Communications

Prior to the departure of PK-RGH, Sjamsir Alam Info requested altitude clearance from Banjarmasin APP and inquired whether the flight should be transferred to Banjarmasin APP or to the ACO of the Ujung Pandang Flight Information Center (FIC) at Balikpapan Sector (Balikpapan Info)⁹. Banjarmasin APP responded that Sjamsir Alam Info could transfer the flight to whichever unit was able to establish communication with the pilot.

Sjamsir Alam Info and Banjarmasin APP communicated using Very High Frequency (VHF), while Balikpapan Info operated on High Frequency (HF).

Approximately ten minutes after departure, Sjamsir Alam Info advised the pilot to contact Banjarmasin APP on frequency 126.5 MHz. Two minutes later, at 0858 LT, the pilot reported back to Sjamsir Alam Info that he was unable to establish communication with Banjarmasin APP due to the long distance. Sjamsir Alam Info then instructed the pilot to report again when 30 NM from Sjamsir Alam, which the pilot acknowledged.

All communications on the frequencies used by Sjamsir Alam Info, Banjarmasin APP, and Balikpapan Info were recorded by ground-based automatic voice recording equipment. There was no record of any transmission from the PK-RGH pilot in the recordings of Banjarmasin APP or Balikpapan Info. The pilot's acknowledgment to report again at 30 NM from Kotabaru was the last recorded transmission of PK-RGH.

It was found that the helicopter was not equipped with an HF radio, despite the flight plan indicating otherwise.

⁹ ACO of Ujung Pandang Flight Information Center unit – Balikpapan Sector will be named as Balikpapan Info for the purpose of this report.

1.10 Aerodrome Information

The flight departed from Gusti Sjamsir Alam Airport (WAOK), Kotabaru, which has the following specifications:

Airport Name	: Gusti Sjamsir Alam Airport
Location Identifier	: WAOK
Airport Operator	: UPT Dirjen Hubud
Aerodrome Reference Point Coordinates	: 03°17'42" S, 116°09'57" E
Elevation	: 12 ft
Runway Designation	: 16/34
Runway Dimensions	: 1,650 m × 30 m
Surface Type	: Asphalt

1.11 Flight Recorders

The aircraft was equipped with an FA5000 Cockpit Voice Flight Data Recorder (CVFDR) manufactured by L3 Aviation Recorders, Part Number 5001-6103-11, Serial Number 00154248. The recorder was recovered from the accident site in a severely damaged condition and subsequently transported to the KNKT recorder facility for further examination.



Figure 3: The CVFDR recovered from the accident site

The examination determined that the recorder required a specialized readout chassis to perform data extraction, which was not available at the KNKT facility. Therefore, KNKT plans to transport the damaged recorder to the Australian Transport Safety Bureau (ATSB) recorder facility, which has the capability to conduct the readout.

1.12 Wreckage and Impact Information

The accident site was located in a mountainous area with steep and difficult-to-access terrain. The first point of impact had not been determined at the time of examination. The wreckage was found in two main sections, with the tail section located separately uphill. The horizontal distance between the main wreckage and the tail section was approximately 100 meters.

The main wreckage was located at an elevation of about 2,200 ft, at coordinates 03°05'06.00" S, 115°37'39.70" E, on a heading of approximately 270°. The tail section was found at coordinates 03°05'06.71" S, 115°37'42.62" E, at an elevation of about 2,400 ft.



Figure 4: The wreckage positions

1.13 Medical and Pathological Information

Should any medical or pathological information be available, it will be included in the final report.

1.14 Fire

The wreckage examination indicated that a fire occurred after impact, which destroyed the main fuselage and significant portions of the cabin. The tail section was separated from the main wreckage and showed no evidence of fire involvement.

1.15 Survival Aspects

Following the loss of communication with PK-RGH, the Sjamsir Alam Info notified Banjarmasin APP, which subsequently escalated the situation to the BASARNAS. The uncertainty phase (INCERFA) was declared at 1109 LT and the distress phase (DETRESFA) at 1242 UTC.

The joint SAR operation officially commenced on 1 September 2025 at 1320 UTC, led by BASARNAS and involving multiple agencies. Search efforts were carried out jointly by BASARNAS, the Indonesian Air Force, the National Police, the *Badan Penanggulangan Bencana Daerah* (Regional Disaster Management Agency/BPBD), and local volunteers, with assistance from residents in surrounding areas.

Four SAR helicopters were deployed. Despite these resources, the aerial search did not detect the wreckage. The search was hampered by mountainous terrain, steep slopes, dense vegetation, and limited communications in the area. Ground teams therefore advanced through the mountain routes on foot, focusing their search within a 1.5 km radius of the last known communication point.

On 3 September 2025, at around 1500 LT, the wreckage of PK-RGH was located in the dense forest of the Meratus Mountains, approximately 600 meters from the last recorded ADS-B data. The discovery was made by a group of ground search teams. These volunteers, guided by information from local residents who had last observed the helicopter and reported unusual engine sounds, identified smoke rising from a ridge near the last radar coordinate. Coordinated ground sweeps by the volunteers and SAR units subsequently led to the wreckage site.

All eight occupants sustained fatal injuries during the impact and subsequent post-impact fire.

1.16 Tests and Research

Test and research information were not available at the time of the issuance of this report. Should any relevant tests and/or research information be obtained during this investigation, it will be included in the Final Report.

1.17 Organizational and Management Information

1.17.1 Aircraft Operator

The aircraft was operated by PT Eastindo Services (Eastindo), which held a valid Air Operator Certificate (AOC) No. AOC-038. Eastindo was authorized to conduct commercial air transportation for passengers and external load operations, Class B, within Southeast Asia, in accordance with the Civil Aviation Safety Regulations (CASR). Operations were subject to a special limitation of daylight VFR only.

The aircraft operator had developed Operations Manuals that provide guidance for staff and management personnel in conducting flight operations. The Operations Manual Part A: General (OM-A), Subchapter I.10.8, outlines the procedures for familiarization with areas, routes, and aerodromes as follows:

PT. Eastindo Services ensure that all flight crews will have for each flight information relating to areas, Routes, and aerodromes. The route guide of the operation manual OM-C contains the following:

- 1. Determination of Minimum Safe Altitude (all phases of flight)/terrain clearance;*
- 2. Check that sufficient NAVAIDS are available for navigating the aircraft along the route and to any airport to be used (including alternates) with the required degree of accuracy.*
- 3. Check that sufficient communication two-way air/ground radio communication system is available to ensure reliable and rapid communications over the entire route between the aircraft and the appropriate air traffic control units;*
- 4. Runway infrastructure (width, length, declared distances, pavement strength, lightning);*

The latest revision of the Operations Manual Part C: Area, Routes and Aerodrome (OM-C), dated 30 August 2024, did not include any area and route information or determination of minimum safe altitude for the flight between Kotabaru and Palangka Raya. The occurrence flight was the operator's first operation on this route.

1.17.2 Air Traffic Services Provider

The air traffic services (ATS) in Indonesia are provided by *Perusahaan Umum Lembaga Penyelenggara Pelayanan Navigasi Penerbangan Indonesia* (AirNav Indonesia) which holds a valid ATS provider certificate authorizing it to provide flight information services within the Sjamsir Alam Aerodrome Flight Information Zone (AFIZ) and the Balikpapan Sector, as well as approach control services within the Banjarmasin Terminal Control Area (TMA).

The airspace classification in the Sjamsir Alam AFIZ and Balikpapan Sector are designated as uncontrolled airspace (Class G), while the Banjarmasin TMA is controlled airspace (Class B).

Flight information services within the Sjamsir Alam AFIZ are provided within 5 NM radius from Sjamsir Alam Aerodrome Reference Point (ARP), with vertical extending from the surface (ground/water) up to 4,000 ft. Beyond this area, aircraft enters the Balikpapan Sector, as the lower limit for Banjarmasin TMA was 10,000 ft. The airspace designations are illustrated in the Figure 5.

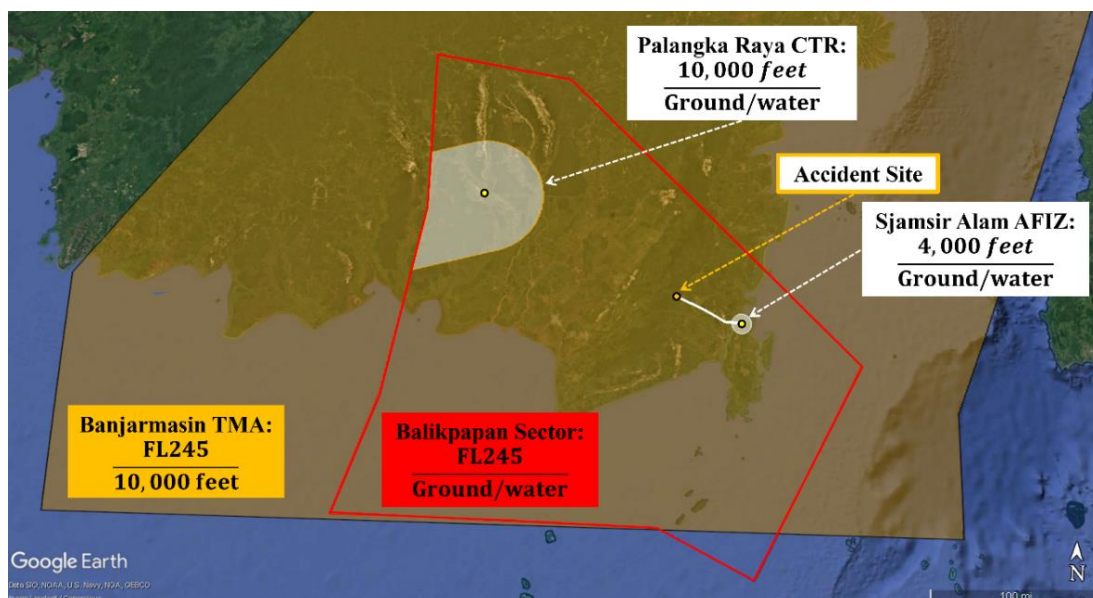


Figure 5: The airspace designation

According to the Standard Operating Procedures (SOP) Subchapter 2.1.10.1 of Samsir Alam Info, for flights with an intended cruising altitude up to 4,000 ft, the ACO at Samsir Alam AFIS is required to notify the Balikpapan Info immediately after the aircraft becomes airborne and advise the pilot to establish communication with Balikpapan Info.

1.18 Additional Information

The investigation is continuing, should any further relevant safety issues emerge during the course of the investigation, KNKT will immediately bring the issues to the attention of the relevant parties and publish as required.

In accordance with ICAO Annex 13 provisions, the following States participated in the investigation:

- Germany *Bundesstelle für Flugunfalluntersuchung* (BFU), as the State of Design and Manufacture of the airframe, BFU appointed an Accredited Representative, assisted by advisers from Airbus Helicopters.
- France *Bureau d'enquêtes et d'analyses pour la sécurité de l'aviation civile* (BEA), as the State of Design and Manufacture of the engines, BEA appointed an Accredited Representative, assisted by advisers from Safran Helicopter Engines.
- Australian Transport Safety Bureau (ATSB), as the State providing technical assistance in the read-out of the CVFDR data, ATSB is entitled to appoint an Accredited Representative.

1.19 Useful or Effective Investigation Techniques

The investigation was conducted in accordance with the KNKT approved policies and procedures, and in accordance with the standards and recommended practices of Annex 13 to the Chicago Convention.

2 FINDINGS

The findings are statements of all significant conditions, events or circumstances in the accident sequence. The findings are significant steps in the accident sequence, but they are not always causal, or indicate deficiencies. Some findings point out the conditions that pre-existed the accident sequence, but they are usually essential to the understanding of the occurrence, usually in chronological order.

In this occurrence, the KNKT identified several findings as follows:

1. On the day of the occurrence, the aircraft was airworthy when dispatched for the flight and operated within the weight and balance limit.
2. The pilot held a valid CPL with a rotorcraft rating, as well as a valid First-Class Medical Certificate with no medical limitations.
3. The aircraft was not equipped with a HF radio; as such equipment was not required under the applicable operational regulation.
4. The aircraft was equipped with the Helionix avionics suite, which incorporates a digital map, SVS, and HTAWS.
5. The aircraft was fitted with an iPad that included the Garmin Pilot application, connected to a Flight Stream 510 as an aid to navigation.
6. The operator did not maintain a published or approved route guide for flights between Kotabaru and Palangka Raya. The occurrence flight was the operator's first operation on this route.
7. Prior to departure, the engine fire bottle indicator illuminated in the cockpit. The pilot shut down the engine, and all occupants disembarked. Following inspection by the engineer, no evidence of fire or extinguisher discharge was found. The electrical connector of the fire detection system was cleaned, and after an engine restart, the warning light extinguished.
8. Satellite imagery indicated the presence of mid- to high-level clouds in the vicinity of the occurrence area.
9. The aircraft was equipped with a CVFDR, which was recovered from the accident site in a severely damaged condition.
10. At 0845 LT, the aircraft departed Kotabaru for Palangka Raya and advised the ACO on Sjamsir Alam Info that the estimated time of arrival was 1010 LT. The ACO instructed the pilot to report "10 minutes out" after departure.
11. At 0854 LT, the pilot reported "10 minutes out" to the Sjamsir Alam Info, who then advised the pilot to contact air traffic controller on Banjarmasin APP.
12. At 0858 LT, the pilot reported being unable to establish contact with Banjarmasin APP and informed the Sjamsir Alam Info accordingly. The Sjamsir Alam Info then advised the pilot to report at 30 NM from Kotabaru. The pilot acknowledged, and this was the last recorded transmission from the aircraft with the Sjamsir Alam Info.
13. There was no record indicating that Sjamsir Alam Info advised the pilot to establish communication with Balikpapan Info.

14. After losing contact, the ACO notified Banjarmasin Air Traffic Services, which then escalated the situation to BASARNAS. The uncertainty phase (INCERFA) was declared at 1109 LT and the distress phase (DETRESFA) at 1242 LT. The SAR operation commenced at 1320 LT.
15. The last Spidertracks data, at 0901 LT, indicated the aircraft at an altitude of 2,422 ft, flying at a speed of 117 knots, on a heading of 297°, and located at coordinates 3°6'54.58" S, 115°41'21.62" E.
16. The last recorded Automatic Dependent Surveillance-Broadcast (ADS-B)¹⁰ data, at 0903 LT, indicated the aircraft at an altitude of 2,725 ft with a groundspeed of 118 kt, on a heading of 295°, at coordinates 03°05'14.10" S, 115°37'56.40" E.
17. On 3 September 2025, the main wreckage was located on a ridgeline approximately 600 meters from the last recorded ADS-B point.
18. The main wreckage was located at an elevation of about 2,200 ft, at coordinates 03°05'06.00" S, 115°37'39.70" E, on a heading of approximately 270°. The tail section was found at coordinates 03°05'06.71" S, 115°37'42.62" E, at an elevation of about 2,400 ft.

¹⁰ ADS is a surveillance technique in which aircraft automatically provide, via a data link, data derived from on-board navigation and position-fixing systems, including aircraft identification, four-dimensional position and additional data as appropriate. The ADS-B is a function on an aircraft or surface vehicle that broadcasts position, altitude, vector and other information for use by other aircraft, vehicles and by ground facilities.

3 SAFETY ACTION

At the time of issuing this draft Final Report, the KNKT had been informed of safety actions resulting from this occurrence taken by the related parties.

3.1 PT. Eastindo Services

On 1 October 2025, Eastindo informed the KNKT that it had implemented safety actions to address operational safety deficiencies identified as a result of this occurrence. Eastindo issued Safety Notices emphasizing Safety Awareness and Critical Safety Procedures for Mountainous Terrain Operations. The detail is provided in the appendices.

4 SAFETY RECOMMENDATIONS

The KNKT acknowledges the safety actions taken by the aircraft operator and considered that the safety actions were relevant to improve safety, however there still safety issues remain to be considered. Therefore, the KNKT issued safety recommendations to address safety issues identified in this report.

The safety recommendation in this investigation report is made with the intention of preventing accidents or incidents and which in no case has the purpose of creating a presumption of blame or liability for an accident or incident.

4.1 Eastindo

04.O.2025.14-01

The aircraft operator's OM-A Subchapter I.10.8, requires the provision of information related to area, route and aerodrome for all flight crews. The route guide in the OM-C should include determination of minimum safe altitude for all phases of flight. However, the latest revision of the OM-C did not include any area and route information, including the determination of minimum safe altitude, for the flight between Kotabaru and Palangka Raya. In addition, the occurrence flight was the operator's first operation on this route.

The absence of area and route information for the flight, particularly for an inaugural operation on a new route, left the flight crew insufficiently informed about operational environment. This condition may reduce flight crew situational awareness and increase operational risk, especially when operating in unfamiliar or mountainous terrain area.

Therefore, KNKT recommends that Eastindo ensure that all flight crew are provided with sufficient area, route, and aerodrome information, including the determination of minimum safe altitude, prior to commencement of any flight operation.

4.2 AirNav Indonesia

04.A.2025.14-02

According to Sjamsir Alam Info's SOP Subchapter 2.1.10.1, for flights with an intended cruising altitude up to 4,000 ft, the ACO at Sjamsir Alam AFIS is required to notify the Balikpapan Info immediately after the aircraft becomes airborne and advise the pilot to establish communication with Balikpapan Info.

There was no record indicating that Sjamsir Alam Info notified the Balikpapan Info regarding the PK-RGH flight or advised the pilot to establish communication with Balikpapan Info. Non-compliance with this procedure resulted in a coordination gap and left Balikpapan Info unaware of the traffic, potentially leading to inadequate provision of information regarding collision hazards to aircraft operating within the Balikpapan Sector.

Therefore, KNKT recommends AirNav Indonesia ensure the implementation of Sjamsir Alam Info's SOP requiring flights with an intended cruising altitude up to 4,000 ft to be notified to Balikpapan Info immediately after the aircraft becomes airborne.

5 APPENDICES

5.1 Eastindo Safety Notice



SAFETY NOTICE

No. : 010/SQD/SN/Eastindo/IX/2025

Date : 17 September 2025
Subject : Critical Safety Procedures for Mountainous Terrain Operations
To : All Flight Crewmembers, FOO and Dispatchers

Purpose: This notice outlines the inherent risks and mandatory safety procedures for all flights operating in or near mountainous terrain. The unique challenges of mountain flying require heightened awareness, detail preparation, and strict adherence to these guidelines to ensure the safety of all on board.

- 1. Key Hazards of Mountain Flying All personnel must recognize of the following elevated risks:**
 - a. Rapidly Changing Weather: Conditions can deteriorate quickly with sudden fog, precipitation, high winds, and turbulence.
 - b. High Density Altitude: Reduced air density significantly impairs aircraft performance (lift, engine power, and propeller efficiency).
 - c. Severe Turbulence and Downdrafts: Strong, unpredictable winds can create powerful downdrafts on the leeward (downwind) side of ridges.
 - d. Limited Forced Landing Areas: Few, if any, viable emergency landing zones exist in rugged terrain.
 - e. Visual Illusions: False horizons and inaccurate depth perception can lead to spatial disorientation.
 - f. Communications Limitations: VHF radio signals can be blocked by mountainous terrain.
- 2. Pre-Flight Procedures (Mandatory for Crew)**
 - a. Thorough Weather Briefing: Obtain a detailed forecast specifically for mountain routes, paying close attention to winds aloft, mountain wave activity, and cloud bases.
 - b. Performance Calculations: calculate takeoff and landing distances, climb rates, and cruise performance factoring in density altitude. Confirm the aircraft's performance capability exceeds requirements for the intended route.
 - c. Route Planning: Plan routes along known passes and valleys, not over the top of uncharted ridges. Always identify a safe "escape route" to turn towards lower terrain.
 - d. Weight and Balance: Ensure the aircraft is within weight and balance limits. Consider operating below maximum gross weight to improve performance.
- 3. In-Flight Procedures (Mandatory for Crew)**
 - a. Maintain Situational Awareness: Continuously monitor your position relative to terrain using all available resources (GPS, charts, visual references).
 - b. Altitude is Life: Maintain a minimum safe altitude of 2,000 feet above the highest obstacle within a 5-mile radius. This provides a margin for error and recovery from downdrafts.
 - c. Turbulence Penetration Speed: Fly at the recommended turbulence penetration airspeed (V_a) when encountering rough air.
 - d. Manage Winds: Approach ridges at a 45-degree angle to allow for a quick turn away from downdrafts. NEVER fly downwind of a ridge.
 - e. Cabin Security: Keep all cabin items securely stowed and seatbelts fastened at all times.
- 4. Zero Tolerance Complacency is a major threat in mountain flying. Deviation from these procedures is unacceptable. If weather conditions deteriorate or there is any doubt about safety, the pilot-in-command is required to divert, turn back, or delay the flight.**

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