



**KOMITE NASIONAL KESELAMATAN TRANSPORTASI  
REPUBLIC OF INDONESIA**

# **PRELIMINARY**

**KNKT.24.05.011.04**

**Aircraft Accident Investigation Report**

**Perkumpulan Penerbangan Indonesia**

**Tecnam P2006T; PK-IFP**

**South Tangerang, Banten**

**Republic of Indonesia**

**19 May 2024**

**2024**

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 based upon the investigation carried out by the KNKT in accordance with Annex 13 to the Convention on International Civil Aviation, the Indonesian Aviation Law (UU No. 1/2009) and Government Regulation (PP No. 62/2013).

The preliminary report consists of factual information collected until the preliminary report is published. This report will not include analysis and conclusion.

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However, the KNKT fully recognizes that the implementation of recommendations arising from its investigations will, in some cases, incur a cost to the industry.

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Jakarta, 22 July 2024

**KOMITE NASIONAL  
KESELAMATAN TRANSPORTASI  
CHAIRMAN**



**SOERJANTO TIAHJONO**

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## ABBREVIATIONS AND DEFINITIONS

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ACO	:	Aeronautical Communication Officer
AFM	:	Aircraft Flight Manual
AIP	:	Aeronautical Information Publication
ASTM	:	American Society for Testing and Materials
ATC	:	Air Traffic Controller
AVGAS	:	Aviation Gasoline
CASR	:	Civil Aviation Safety Regulation
CCTV	:	Closed Circuit Television
C of A	:	Certificate of Airworthiness
C of R	:	Certificate of Registration
CPL	:	Commercial Pilot License
EM	:	Euronorm
FPM	:	Feet per Minute
GPS	:	Global Positioning System
KNKT	:	<i>Komite Nasional Keselamatan Transportasi</i>
LH	:	Left Hand
LT	:	Local Time
LEMIGAS	:	<i>Lembaga Minyak dan Gas Bumi</i>
MOGAS	:	Motor Gasoline
NMC	:	No Mode C
OC	:	Operator Certificate
PIC	:	Pilot In Command
PPI	:	<i>Perkumpulan Penerbangan Indonesia</i>
RH	:	Right Hand
RON	:	Research Octane Number
SD	:	Secure Digital
UTC	:	Universal Time Coordinate
VFR	:	Visual Flight Rules

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## SYNOPSIS

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On 19 Mei 2024, a Tecnam P2006T aircraft, registered PK-IFP was being operated by *Perkumpulan Penerbangan Indonesia* (PPI) for joy flight. The flights schedule of the day was Pondok Cabe Airport (WIHP), South Tangerang to Salakanagara Airport Tanjung Lesung (WIHI), Pandeglang and return.

On board the aircraft was one pilot and two passengers. The passengers were the aircraft engineer of the PK-IFP, and the other was a pilot member of PPI which has experienced flying to Tanjung Lesung.

The aircraft took off from Pondok Cabe using Runway 36. At 1141 LT, the aircraft airborne from Pondok Cabe and continued climbing and cruising at altitude of 1,500 feet.

During the takeoff roll and when the aircraft approaching Tanjung Lesung, the aircraft engineer recorded a video using his mobile phone that captured the cockpit situation from backseat. The video showed that the needle of the left tank fuel quantity indicator was below the 0 lt value (on the electrical zero) while the needle of the right tank fuel quantity indicator was in between 30 lt and 50 lt.

At 1222 LT, based on a video recording recorded by an eyewitness at the airport, the aircraft landed at Tanjung Lesung using Runway 25 and parked at beginning Runway 07. All occupants then disembarked from the aircraft and took a rest. About 1230 LT, all occupants embarked on the aircraft for the return flight to Pondok Cabe and took off using Runway 07. During the takeoff roll at Tanjung Lesung, the engineer recorded a video using his mobile phone again and captured the cockpit situation from backseat. At this time, the video only captured the LH fuel quantity indicator which was still below the 0 lt value (on the electrical zero).

At 1310 LT, the aircraft departed from Tanjung Lesung and climbed to cruising altitude of 1,500 feet. At 1341 LT, the ATC surveillance system recorded the aircraft was abeam Waypoint GOLFI at altitude of 1,000 feet and continued descending.

At 1342 LT, the pilot transmitted distress message to Halim Tower controller “MAYDAY, MAYDAY, MAYDAY. INDIA FOXTROT PAPA a...make fo...”. The distress message was acknowledged by Halim Tower controller. At this time, the ATC surveillance system recorded the aircraft was at altitude 600 feet.

The aircraft crashed near an open field which was about 1.5 NM on bearing 146° from Waypoint GOLFI.

At the time of issuing this draft Final Report, the KNKT had not been informed of any safety actions resulting from this occurrence. At the time of publishing this Preliminary Report, KNKT was not issuing any safety recommendation.

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

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# 1 FACTUAL INFORMATION

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## 1.1 History of the Flight

On 19 Mei 2024, a Tecnam P2006T aircraft, registered PK-IFP was being operated by *Perkumpulan Penerbangan Indonesia* (PPI) for joy flight. The flight schedule of the day was from Pondok Cabe Airport (WIHP)<sup>1</sup>, South Tangerang to Salakanagara Airport Tanjung Lesung (WIHI)<sup>2</sup>, Pandeglang and return.

Based on the filed flight plan for the first flight of the day, the flight would be conducted following the Visual Flight Rule (VFR) and the fuel endurance would be sufficient for a four-hour flight.

On board the aircraft was one pilot and two passengers. The passengers were the aircraft engineer of the PK-IFP, and a pilot member of PPI which has experienced flying to Tanjung Lesung.

At 0158 UTC (0858 LT<sup>3</sup>), based on airport Closed Circuit Television (CCTV) recording the aircraft was move from the PPI shelter at Pondok Cabe to the apron and all occupants embarked the aircraft. The pilot then requested for engine start and cruising altitude clearance to the Pondok Cabe aeronautical communication officer (ACO), and was responded to standby. As the flight would enter the airspace controlled by Halim Perdana Kusuma Airport control tower (Halim Tower), the Pondok Cabe ACO relayed the request to the Halim Tower controller. The engine start was approved, and the flight was cleared to cruise at altitude of 1,000 feet. Thereafter, the Pondok Cabe ACO relayed the clearances to the pilot.

At 0909 LT, the pilot performed the engines start. The right engine started successfully after the third starting attempt and the pilot continued to start the left engine. After 15 starting attempts, the left engine could not be started.

At 0917 LT, the right engine was shut down and the pilot advised the Pondok Cabe ACO that the engine start was cancelled due to technical reason. The aircraft then was moved back to the PPI shelter and all occupants disembarked from the aircraft.

At 0924 LT, the aircraft engineer assisted by a PPI mechanic rectified the engine problem and finished the rectification about 1029 LT.

At 1120 LT, the aircraft was moved from the PPI shelter to the apron. The aircraft engineer went to the flight deck followed by the pilot. At 1122 LT, the left engine was started successfully on first attempt. Thereafter the left engine was shut down, pilot and the aircraft engineer went out from the flight deck.

At 1125 LT, all occupants embarked on the aircraft. The pilot then requested engine start clearance to the Pondok Cabe ACO and was responded to standby. The Pondok Cabe ACO then relayed again the pilot request to the Halim Tower controller. After the request was approved, the Pondok Cabe ACO relayed the clearances to the pilot.

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<sup>1</sup> Pondok Cabe Airport (WIHP), South Tangerang will be named as Pondok Cabe for the purpose of this report.

<sup>2</sup> Salakanagara Airport Tanjung Lesung (WIHI), Pandeglang will be named as Tanjung Lesung for the purpose of this report.

<sup>3</sup> The 24-hour clock in Local Time (LT) is used in this report to describe the local time as specific events occurred. Local time is Universal Time Coordinated (UTC) +7 hours.



At 1128 LT, the right engine was successfully started on first attempt. At 1129 LT, the left engine was successfully started on the first attempt. The pilot then advised the Pondok Cabe ACO that the aircraft was ready to taxi and was advised to taxi to Runway 36.

The Pondok Cabe ACO advised the pilot that Runway 36 was clear. During takeoff roll, the aircraft engineer recorded a video using his mobile phone that captured the cockpit situation from the backseat. The video showed that the needle of the left tank fuel quantity indicator was below the 0 lt value (on the electrical zero) while the needle of the right tank fuel quantity indicator was between 30 lt and 50 lt.



**Figure 1: The flight deck view during take-off roll at Pondok Cabe and the zoom in of the fuel quantity indicators**

At 1141 LT, the aircraft airborne from Pondok Cabe and continued climbing and cruising at altitude of 1,500 feet. The flight was uneventful until the aircraft landed at the Tanjung Lesung.

When the aircraft was approaching Tanjung lesung, the engineer recorded a video using his mobile phone again and captured the cockpit situation from backseat. The video showed that the needle of the left tank fuel quantity indicator remained below the 0 lt value (on the electrical zero) while the needle of the right tank fuel quantity indicator remained between 30 lt and 50 lt.



**Figure 2: The flight deck view during approach at Tanjung Lesung**

At 1222 LT, based on a video recording recorded by an eyewitness at the airport, the aircraft landed at Tanjung Lesung using Runway 25 and parked at beginning Runway 07. All occupants then disembarked from the aircraft and took a rest. About 1230 LT, all occupants embarked on the aircraft for the return flight to Pondok Cabe.

At 1305 LT, based on eyewitness video recording, the right engine was started followed by the left engine a minute later without any indication of engine problem. The aircraft then took off using Runway 07.

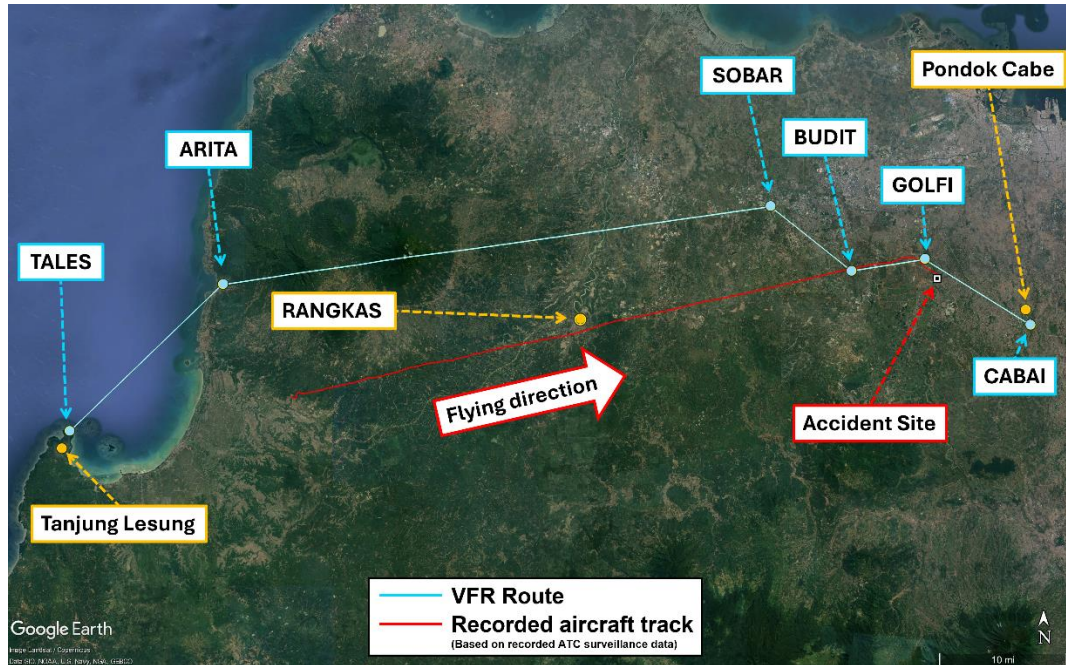
During the takeoff roll, the engineer recorded a video using his mobile phone again and captured the cockpit situation from backseat. At this time, the video only captured the LH fuel quantity indicator which remained below the 0 Lt value (on the electrical zero).



**Figure 3: The flight deck view during take-off roll at Tanjung Lesung.**

At 1310 LT, the aircraft departed from Tanjung Lesung and climbed to a cruising altitude of 1,500 feet. The aircraft flew direct to the VFR Waypoint BUDIT and entered airspace which was provided flight information services by Jakarta ACO.

At 1318 LT, the pilot made initial contact with Jakarta ACO. The pilot reported to the Jakarta ACO that the aircraft position was 38 NM to Waypoint BUDIT and advised the estimated time over Waypoint RANGKAS would be 1333 LT. The aircraft was captured in the surveillance system utilized by Jakarta air traffic control (ATC).



**Figure 4: The VFR route guide and recorded aircraft flight track**

At 1329 LT, Jakarta ACO contacted PK-IFP pilot and requested estimated time over waypoint BUDIT, and was responded that the estimated time would be 1340 LT. The pilot also advised Jakarta ACO that the estimated time arrival at Pondok Cabe would be 1356 LT. Jakarta ACO then instructed the pilot to report when the aircraft was flying over Waypoint BUDIT. The pilot acknowledged and informed that after flying over Waypoint BUDIT, the aircraft would fly to Waypoint GOLFI.

At 1338 LT, the pilot reported to Jakarta ACO that the aircraft was over Waypoint BUDIT. Jakarta ACO responded by advising the pilot to report when the aircraft was over Waypoint GOLFI.

At 1339 LT, the aircraft engineer sent a text message to a PPI personnel who was at Pondok Cabe, informing that the aircraft was over Budiarto Airport (Waypoint BUDIT) and it was raining. The aircraft engineer asked the PPI personnel whether it was also raining at Pondok Cabe. The PPI personnel responded that the weather at Pondok Cabe was clear.

At 13:40:27 LT, the ATC surveillance system recorded the aircraft descending from altitude of 1,500 feet.

At 13:41:02 LT, the pilot reported to Jakarta ACO that the aircraft was over Waypoint GOLFI. The Jakarta ACO then advised the pilot to contact Halim Tower controller.

At 13:41:04 LT, the ATC surveillance system recorded the aircraft descended passing altitude of 1,100 feet with calculated rate of descent of about 400 feet per minute (FPM).



At 13:41:23 LT, the pilot made initial contact with Halim Tower controller and reported that the aircraft was over Waypoint GOLFI. The Halim Tower controller then instructed the pilot to maintain 1,000 feet and report when flying over Waypoint CABAI.

At 13:41:41 LT, the ATC surveillance system recorded the aircraft was abeam Waypoint GOLFI at altitude of 1,000 feet and continued descending.

At 13:42:37 LT, the pilot transmitted distress message to Halim Tower controller “MAYDAY, MAYDAY, MAYDAY. INDIA FOXTROT PAPA a...make fo...”. The distress message was acknowledged by Halim Tower controller. At this time, the ATC surveillance system recorded the aircraft was at altitude 600 feet.

At 13:42:40 LT, the ATC surveillance system recorded the aircraft descent passing altitude of 500 feet with calculated rate of descend of about 500 FPM.

Several eyewitnesses on the ground near the aircraft flight path and near the accident site, saw the aircraft flying at low altitude and did not hear any engine sound. An eyewitness who located about 700 meters Northwest of the accident site recorded the aircraft maneuver using his mobile phone. The video record indicated the aircraft rolled to the left more than 45° and then dived down.



**Figure 5: The zoomed in and cropped screenshot images from eyewitness video recording**

At 13:42:49 LT, the Halim Tower controller called the PK-IFP pilot several times and there was no response.

At 13:42:51 LT, the ATC surveillance system recorded the aircraft altitude label target changed from 400 feet to No Mode C (NMC)<sup>4</sup> then the aircraft target disappeared.

The aircraft crashed in a park, near an open field which was about 1.5 NM on bearing 146° from Waypoint GOLFI.

<sup>4</sup> No Mode C (NMC) is a label on the air traffic surveillance system indicated that no valid mode C available

### 1.3 Injuries to Persons

Injuries	Flight crew	Passengers	Total in Aircraft	Others
Fatal	1	2	3	-
Serious	-	-	-	-
Minor	-	-	-	-
None	-	-	-	-
<b>TOTAL</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>-</b>

All occupants were Indonesian.

### 1.4 Damage to Aircraft

The aircraft was destroyed by the impact force.

### 1.5 Other Damage

There was no other damage to property and/or the environment.

### 1.6 Personnel Information

#### 1.6.1 Pilot Information

Pilot In Command (PIC)

Gender : Male  
Age : 39 years  
Nationality : Indonesia  
Date of joining company : 17 July 2023  
License : Commercial Pilot License (CPL)  
Date of issue : 3 June 2014  
Medical certificate : Class I  
Last of medical : 16 Mei 2024  
Validity : 16 November 2024  
Medical limitation : None  
Last line check : NA  
Last proficiency check : 21 December 2023  
ICAO language proficiency : Not meet ICAO Language Proficiency Requirements

#### **Flying experience**

Total hours : 4,119 hours 9 minutes  
Total on type : 701 hours 49 minutes  
Last 90 days : 18 hours 30 minutes  
Last 30 days : 8 hours 14 minutes

Last 7 days : 4 hours 4 minutes  
Last 24 hours : 1 hours 34 minutes  
This flight : 37 minutes

## **1.7 Aircraft Information**

### **1.7.1 General**

Registration Mark : PK-IFP  
Manufacturer : Costruzioni Aeronautiche Tecnam  
Country of Manufacturer : Italy  
Type/Model : Tecnam P2006T  
Serial Number : 101  
Year of Manufacture : 2013

#### **Certificate of Airworthiness**

Date of issue : 23 February 2024  
Validity : 22 February 2025  
Category : Normal  
Limitation : None

#### **Certificate of Registration**

Number : 4489  
Date of issue : 18 January 2023  
Validity : 17 January 2026  
Time Since New : 49 hours 21 minutes  
Cycles Since New : 46  
Last Major Check : Inspection B, C, D, including engine annual, 800 hours/3 years, weight and balance, swing compass, altitude calibration and transponder (6 February 2023)  
Last Minor Check : Maintenance due to calendar (21 September 2023)

### **1.7.2 Engines**

Manufacturer : Rotax  
Type/Model : Rotax 912-S3  
Left Engine Serial Number : 4924482  
Time Since New : 49 hours 21 minutes  
Cycle Since New : 46  
Right Engine Serial Number : 4924483

Time Since New : 49 hours 21 minutes  
Cycle Since New : 46

### 1.7.3 Propellers

Manufacturer : MT Propeller  
Type/Model : MTV-21-A-C-F/CF178-05  
Serial Number-1 propeller : 130035  
Time Since New : 49 hours 21 minutes  
Cycle Since New : 46  
Time Since Overhaul : 31 hours 39 minutes  
Cycle Since Overhaul : 24  
Serial Number-2 propeller : 130036  
Time Since New : 49 hours 21 minutes  
Cycle Since New : 46  
Time Since Overhaul : 31 hours 39 minutes  
Cycle Since Overhaul : 24

### 1.7.4 Global Positioning System

The aircraft was equipped with Garmin G950 Global Positioning System (GPS), which has the capability of flight data logging. The Garmin G950 was able to store the flight data on Secure Digital (SD) data card. At the day of the occurrence, the SD card was not installed.

### 1.7.5 Fuel

The aircraft used Pertamina Turbo, a motor gasoline (MOGAS) with Research Octane Number (RON) 98 produced by PT. Pertamina.

Refer to Tecnam P2006T Aircraft Flight Manual (AFM) Section 1:

<i>Approved fuel</i>	<i>MOGAS American Society for Testing and Materials (ASTM) D4818</i> <i>MOGAS Euronorm (EN) 228 Super/Super plus with minimum RON 95</i> <i>Aviation Gasoline (AVGAS) 100LL (ASTM D910)</i>
<i>Fuel Tanks</i>	<i>Two integrated tanks (one in each wing) fitted with drainable sump and drain valve</i>
<i>Capacity of each wing tank</i>	<i>100 litres (26.42 US gallons)</i>
<i>Tanks overall capacity</i>	<i>200 litres (52.8 US gallons)</i>
<i>Overall usable fuel</i>	<i>194.4 litres (51.35 US gallons)</i>
<i>Overall unusable fuel</i>	<i>5.6 litres (1.48 US gallons)</i>

The Tecnam P2006T AFM Section 7 described the aircraft fuel system as follows:

*Fuel system consists of two integrated tanks inside the wing torque boxes and fitted with inspection doors.*

*Each fuel tank has a capacity of 100 litres and is equipped with a vent valve (its outlet is located on the lower wing skin) and a sump fitted with a drain valve for water/moisture drainage purposes.*

*An electric fuel pump feeds the pertinent engine in case of engine-driven pump failure. The fuel Gascolator (a sediment-filter bowl) is located beneath the engine nacelle, between the fuel tank and the electrical pump, in correspondence of the fuel system lowest point. It is fitted with a drain valve which allows for the overall fuel line drainage.*

*Fuel quantity indicators and fuel pressure indicators for each engine are located on the RH instrument panel.*

*In normal conditions, to supply fuel to engines, each engine pump sucks fuel from the related tank; crossfeed is allowed by fuel valves located on the front spar and controlled by Bowden cables from the fuel selectors located on the cabin overhead panel.*

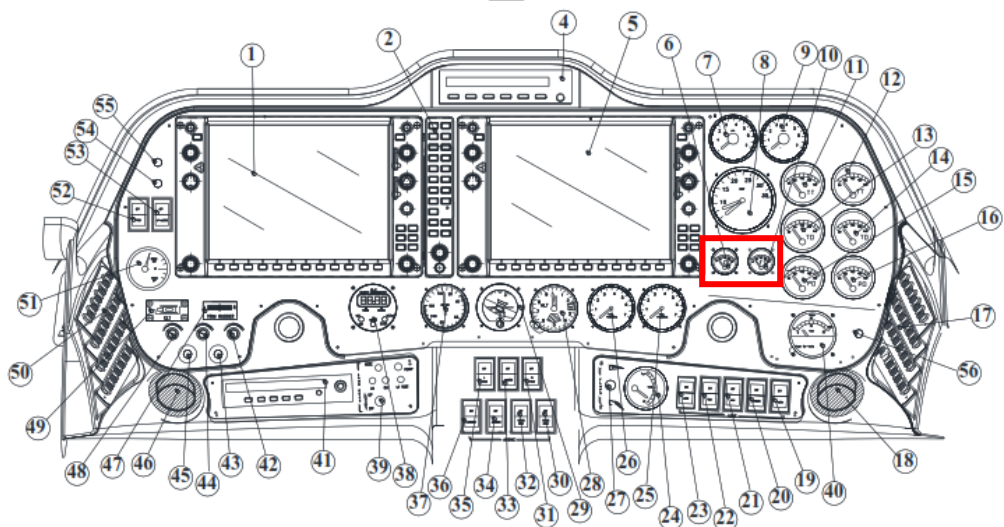
*Left fuel selector manages the left engine feeding, allowing fuel supply from the left fuel tank or from the right one (crossfeed).*

*Right fuel selector manages the right engine feeding, allowing fuel supply from the right fuel tank or from the left one (crossfeed).*

*Each selector can be set in OFF position only pulling and simultaneously rotating the lever: this avoids an unintentional operation.*

### 1.7.6 Fuel Quantity Indicator

According to the Tecnam P2006T AFM, the aircraft has fuel quantity indicator for each fuel tank respectively, which was located on the right instruments panel.



**Figure 6: The location of fuel quantity indicators (red-highlighted)**



The following figure shows the fuel quantity indicators when on electrical zero condition.

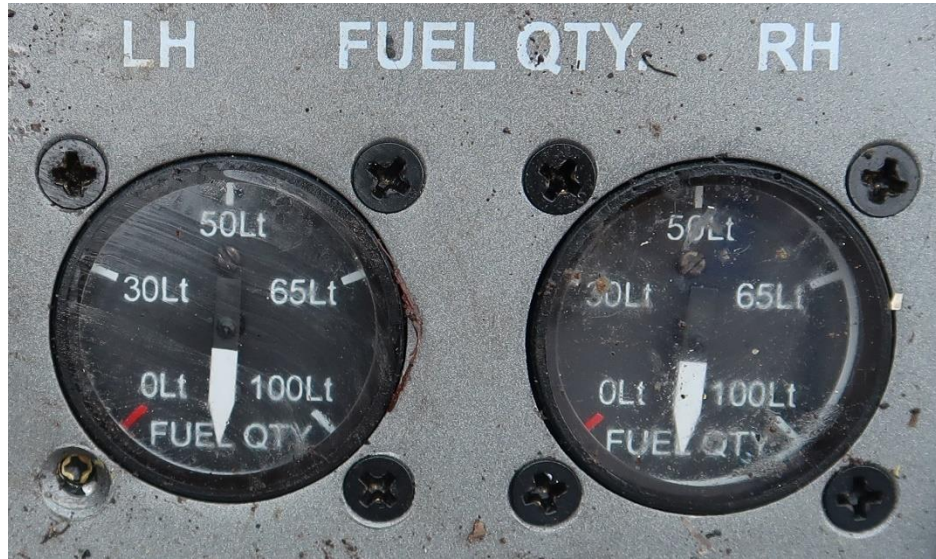


Figure 7: The fuel quantity indicators found at the accident site

## 1.8 Meteorological Information

The Closed-Circuit Television (CCTV) located near the accident site recorded that when the aircraft crashed, the weather was cloudy and four minutes after the accident, the rain started falling over.

## 1.9 Aids to Navigation

The Indonesia **Aeronautical Information Publication** (AIP) Volume I Subchapter ENR 6-1D provided VFR Route for Jakarta and North Java Area. The VFR route from Tanjung Lesung to Pondok Cabe consisted of several waypoints as depicted in the following figure.

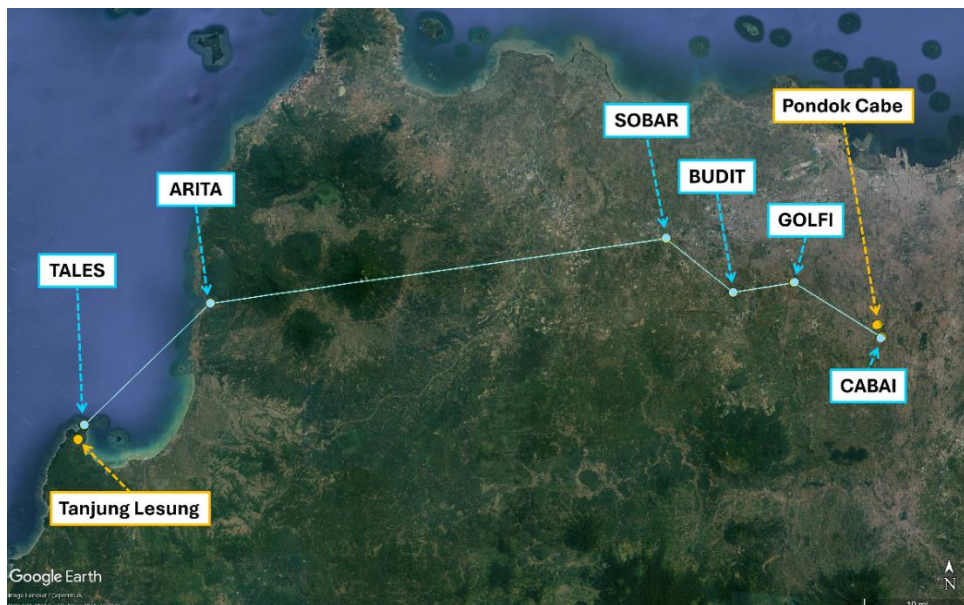


Figure 8: The available VFR route from Tanjung Lesung to Pondok Cabe

The aircraft was equipped with GPS Garmin G950 for navigation purposes. The aircraft GPS allows pilot to create, edit, and store several flight plans with waypoints on each flight plan. The GPS can use direct point-to-point navigation to provide guidance from a certain point or position to another point on the flight plan.

### 1.10 Communications

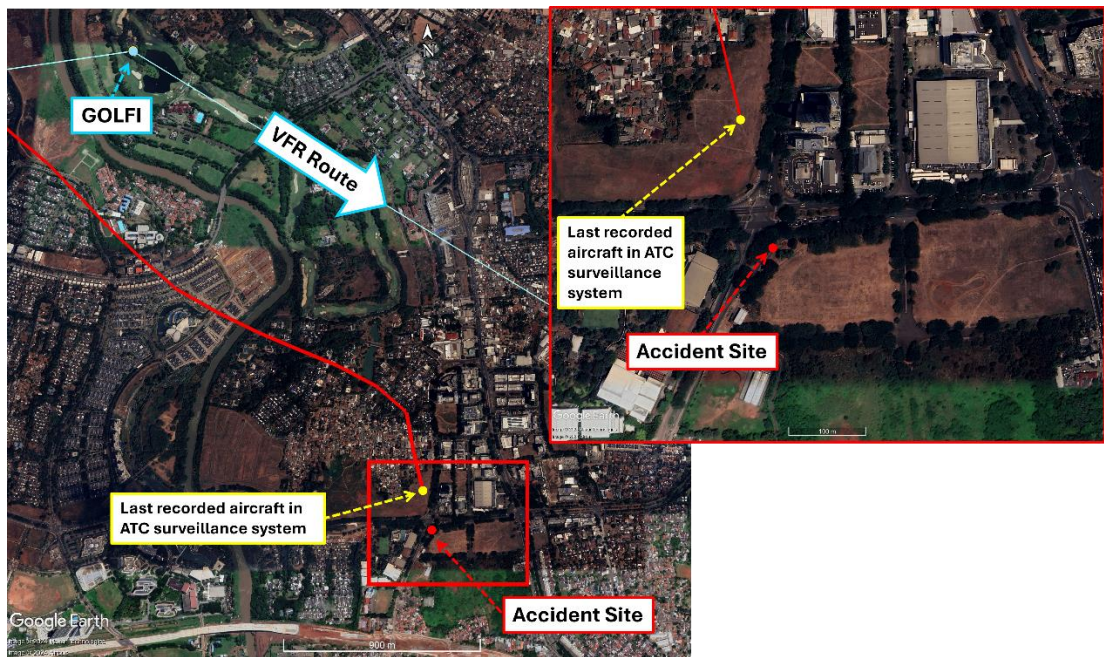
All communications between the pilot and controller (Jakarta ACO, Halim Tower controller) were recorded by ground based automatic voice recording equipment. The quality of the aircraft's recorded transmissions was good. The contents of the recording will be discussed in the final report.

### 1.11 Flight Recorders

The aircraft was not fitted with flight data recorder nor cockpit voice recorder. Neither recorder was required by current Indonesia aviation regulation for this type of aircraft.

### 1.12 Wreckage and Impact Information

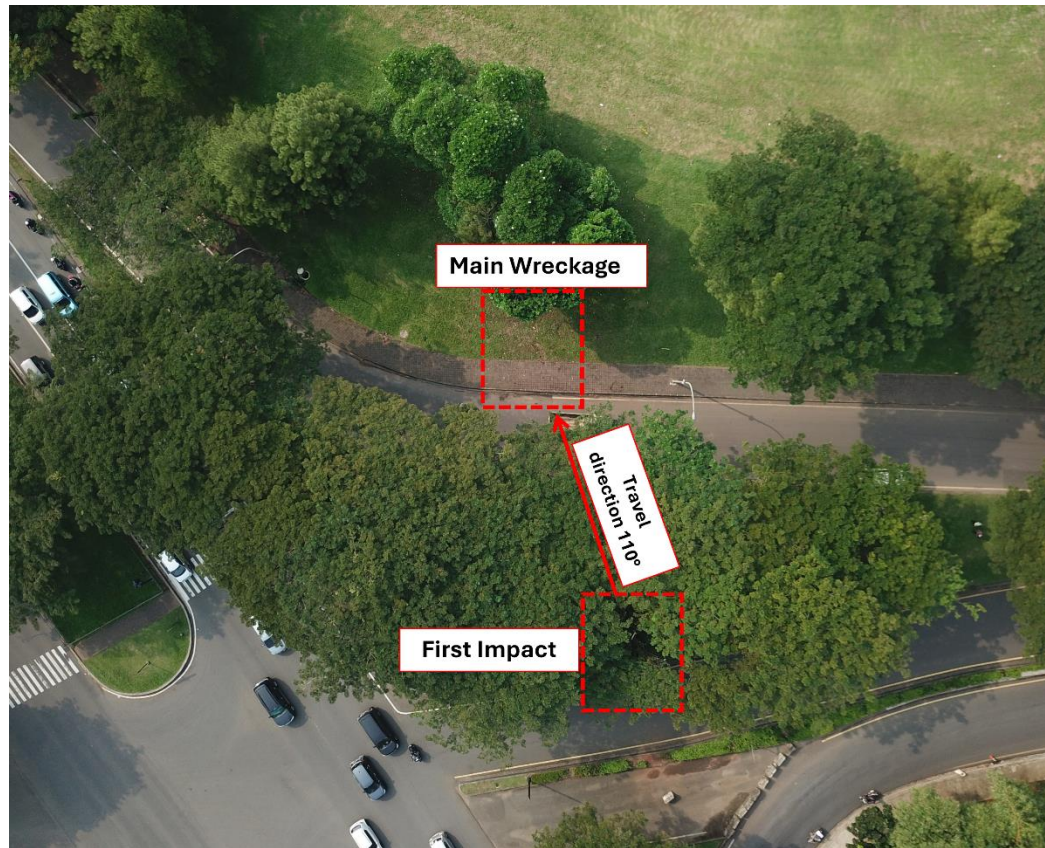
The aircraft wreckage was found on coordinate  $6^{\circ}18'0.49''S$   $106^{\circ}39'50.71''E$ , which located about 1.5 NM from Waypoint GOLFI on a bearing of  $146^{\circ}$  with an elevation about 88 feet. The accident site was located near an open field.



**Figure 9: The flight track and accident site (based on ATC surveillance system and imposed to Google Earth)**

The aircraft collided with trees then impacted the ground with the estimated impact angle of  $40^{\circ}$ . The aircraft stopped across the street from the first impact point.





**Figure 10: The accident site**

The right engine detached from its engine bay and was found about 7 meters on the left side of the first impact point. The left horizontal stabilizer and right-wing tip was found near the first ground impact point. At the accident site, there was smell of fuel.

### **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**

There was no evidence of in-flight or post-impact fire.

### **1.15 Survival Aspects**

The accident was not survivable

### **1.16 Tests and Research**

#### **1.16.1 Fuel Test**

The investigation team was unable to retrieve the remaining fuel from the aircraft wreckage due to the damage of the aircraft. However, the investigation managed to have sample of fuel from the fuel supplier which has the same batch as the fuel that was used for the aircraft during the accident.

On 29 Mei 2024, the fuel sample was sent for testing to fuel quality testing facility of the *Lembaga Minyak dan Gas Bumi* (LEMIGAS) – a research center for oil and gas technology development under the Ministry of Energy and Mineral Resources.

The testing parameters were as follows:

- Research Octane Number (RON)
- Oxidation Stability
- Phosphorus Content
- Oxygen Content
- Olefin Content
- Aromatic Content
- Content of Benzene
- Distillations
- Type Weight at 15°C
- Unwashed Gum
- Washed Gum
- Steam Pressure

The quality test result indicated that all parameters were within the quality limits. The detailed result of the quality test can be found in the appendices.

### **1.17 Organizational and Management Information**

The aircraft was operated by *Perkumpulan Penerbangan Indonesia* (PPI), which held a valid operator certificate with an Operator Certificate (OC) number 91-022. The aircraft operator was authorized to perform non-commercial general aviation in accordance with the Civil Aviation Safety Regulation Part (CASR) 91. The PPI has one fleet of Tecnam P2006T.

### **1.18 Additional Information**

The investigation is continuing, and KNKT plans to complete the investigation within 12 months of the day of the occurrence. Should any further relevant safety issues emerge during the investigation, KNKT will immediately bring the issues to the attention of the relevant parties and publish as required.

### **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.

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## 2 FINDINGS

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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. Pilot held valid license and medical certificate
2. The aircraft had a valid Certificate of Airworthiness (C of A) and Certificate of Registration (C of R).
3. The occurrence flight was the second flight of the day for the pilot and aircraft.
4. The aircraft was equipped with Garmin G950 Global Positioning System (GPS), which has the capability of flight data logging containing the flight data store on SD Card. At the day of the occurrence, the SD card was not installed.
5. Prior to the first flight, the right engine started successfully after the third starting attempt, while after the 15 starting attempts, the left engine could not be started.
6. At 0924 LT, the aircraft engineer assisted by a PPI mechanic rectified the engine problem and finished the rectification at 1029 LT.
7. At 1129 both engines were successfully started on first attempt. The pilot then advised the Pondok Cabe ACO that the aircraft was ready to taxi and was advised to taxi to Runway 36.
8. During takeoff roll, the aircraft engineer recorded a video using his mobile phone that captured the needle of the left tank fuel quantity indicator was below the 0 lt value (on the electrical zero) while the needle of the right tank fuel quantity indicator was in between 30 lt and 50 lt. These indications remained during the aircraft approached Tanjung Lesung.
9. At 1305 LT, based on eyewitness video recording, the right engine was started followed by the left engine in a minute later without any indication of engine problem. The aircraft then take off using Runway 07.
10. During the takeoff roll, the engineer recorded a video using his mobile phone again and only captured the LH fuel quantity indicator which was still below the 0 lt value (on the electrical zero).
11. At 1310 LT, the aircraft departed from Tanjung Lesung and climbed to a cruising altitude of 1,500 feet. The aircraft flew direct to the VFR Waypoint BUDIT.
12. At 1339 LT, the aircraft engineer sent a text message to a PPI personnel who was at Pondok Cabe, informing that the aircraft was over Budiarto Airport (Waypoint BUDIT), and it was raining. The aircraft engineer asked the PPI personnel whether it was also raining at Pondok Cabe. The PPI personnel responded that the weather at Pondok Cabe was clear.
13. At 13:40:27 LT, the ATC surveillance system recorded the aircraft descended from altitude of 1,500 feet, and at 13:41:04 LT, the aircraft descended passing

altitude of 1,100 feet with calculated rate of descent of about 400 feet per minute (FPM).

14. At 13:41:23 LT, the pilot made initial contact with Halim Tower controller and reported that the aircraft was over Waypoint GOLFI. The Halim Tower controller then instructed the pilot to maintain 1,000 feet and report when flying over Waypoint CABAI.
15. At 13:41:41 LT, the ATC surveillance system recorded the aircraft was abeam Waypoint GOLFI at altitude of 1,000 feet and continued descending.
16. At 13:42:37 LT, the pilot transmitted distress message to Halim Tower controller "MAYDAY, MAYDAY, MAYDAY. INDIA FOXTROT PAPA a...make fo...". The distress message was acknowledged by Halim Tower controller. At this time, the ATC surveillance system recorded the aircraft was at altitude 600 feet.
17. At 13:42:40 LT, the ATC surveillance system recorded the aircraft descent passing altitude of 500 feet with calculated rate of descend of about 500 FPM.
18. Several eyewitnesses on the ground near the aircraft flight path and near the accident site, saw the aircraft flying at low altitude and did not hear any engine sound.
19. An eyewitness who located about 700 meters Northwest of the accident site recorded the aircraft maneuver using his mobile phone. The video record indicated the aircraft rolled to the left more than 45° and then dived down.
20. At 13:42:51 LT, the ATC surveillance system recorded the aircraft altitude label target changed from 400 feet to No Mode C (NMC) then the aircraft target disappeared.
21. The aircraft crashed at a park near an open field which was about 1.5 NM on bearing 146° from Waypoint GOLFI. All occupants were fatally injured. The aircraft was destroyed by the impact force.
22. There was no evidence of in-flight or post-impact fire.
23. The Closed-Circuit Television (CCTV) located near the accident site recorded that when the aircraft crashed, the weather was cloudy and four minutes after the accident, the rain started falling over.
24. The aircraft used Pertamina Turbo, a motor gasoline (MOGAS) with Research Octane Number (RON) 98 produced by PT. Pertamina.
25. Fuel samples from the aircraft unable to be collected as the damage of the aircraft. The fuel sample taken from the fuel supplier which has the same batch as the fuel that was used for the aircraft during the accident had been sent to fuel testing facility. The quality test result indicated that all parameters were within the quality limits.

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### **3 SAFETY ACTION**

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At the time of issuing this draft Final Report, the KNKT had not been informed of any safety actions resulting from this occurrence.

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## **4 SAFETY RECOMMENDATIONS**

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At the time of publishing this Preliminary Report, KNKT was not issuing any safety recommendation. 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 will publish it as required.



## 5 APPENDICES

### 5.1 Fuel Test Result

No	Test Parameters	Unit	Test Result	Quality Limits		Test Method
				Min	Max	
1	Research Octane Number (RON)	-	98.0	98.0	-	ASTM D 2699-19e1
2	Oxidation Stability	minute	>480	480	-	ASTM D 525-12a (2019)
3	Phosphorus Content	mg/l	Undetected	Undetected		ASTM D 3231
4	Oxygen Content	% m/m	2.43	-	2.7	ASTM D 4815-15b (2019)
5	Olefin Content	% v/v	17.4	-	*	ASTM D 6730-19
6	Aromatic Content	% v/v	31.4	-	40.0	ASTM D 6730-19
7	Content of Benzene	% v/v	1.08	-	5.0	ASTM D 6730-19
8	Distillation	°C				ASTM D 86-20b
	▪ 10% Evaporation Volume	°C	59.6	-	70	
	▪ 50% Evaporation Volume	°C	102.9	75	125	
	▪ 90% Evaporation Volume	°C	173.8	130	180	
	▪ Final Boiling Point	°C	204,1	-	215	
	▪ Residues	% volume	1.0	-	2.0	
9	Type Weight at 15°C	kg/m <sup>3</sup>	767.4	715	770	ASTM D 4052-18a
10	Unwashed Gum	mg/100ml	24.6	-	70	ASTM D 381-19
11	Washed Gum	mg/100ml	2.8	-	5	ASTM D 381-19
12	Steam Pressure	kpa	49	45	69	ASTM D 323-20a

\* when the olefin content exceeds 20%, the oxidation stability test results are at least 1,000 minutes.

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