

**FINAL**  
KNKT.11.11.23.04

**NATIONAL  
TRANSPORTATION  
SAFETY  
COMMITTEE**

*Aircraft Accident Investigation Report*

**Cessna 172 ; PK-NIP  
PT. Nusa Flying International (NFI)  
Mount Ciremai, West Java  
Republic of Indonesia**

**16 November 2011**



**NATIONAL TRANSPORTATION SAFETY COMMITTEE  
MINISTRY OF TRANSPORTATION  
REPUBLIC OF INDONESIA  
2013**



**DRAFT**  
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2013

This Final Report was produced by the National Transportation Safety Committee (NTSC), 3<sup>th</sup> Floor Ministry of Transportation, Jalan Medan Merdeka Timur No. 5 Jakarta 10110, Indonesia.

The report is based upon the investigation carried out by the NTSC in accordance with Annex 13 to the Convention on International Civil Aviation Organization, the Indonesian Aviation Act (UU No. 1/2009) and Government Regulation (PP No. 3/2001).

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## **GLOSSARY OF ABBREVIATIONS**

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ALA	:	Aerodrome Directory for Light Aircraft
ALAR	:	Aircraft landing (Approach) Accident Reduction
AOC	:	Air Operator Certificate
ATC	:	Air Traffic Control
CFIT	:	Control Flight Into Terrain
CPL	:	Commercial Pilot License
CRM	:	Cockpit Recourses Management
CSN	:	Cycles Since New
CVR	:	Cockpit Voice Recorder
EGT	:	Exhaust Gas Temperature
FDR	:	Flight Data Recorder
ICAO	:	International Civil Aviation Organization
ILS	:	Instrument Landing System
Kg	:	Kilogram(s)
Km	:	Kilometer(s)
Kt	:	Knots (nm/hours)
LT	:	Local Time
Mm	:	Millimeter(s)
MTOW	:	Maximum Take-off Weight
KNKT / NTSC	:	Komite Nasional Keselamatan Transportasi / National Transportation Safety Committee
PIC	:	Pilot in Command
S/N	:	Serial Number
TSN	:	Time Since New
UTC	:	Universal Time Coordinate



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## INTRODUCTION

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### SYNOPSIS

On 16 November 2011 Cessna 172 registration PK-NIP operated by Nusa Flying International (NFI) conducted a training flight for cross country three angle exercise from Halim – Cirebon – Budiarto. The flight was planned to be conducted under (Visual Flight Rules (VFR) and planned to fly via route "HLM" – BARUS – "PW" – "CA" – "IMU" – KIMON – "HLM" – "BTO".

At 00.40 UTC the aircraft departed runway 24 Halim Perdanakusuma Airport. On board in this flight were one Flight Instructor and two student pilots.

At 0050 UTC the pilot reported to Halim Tower controller that the aircraft position was over BARUS and estimated time over PW at 0110 UTC. Halim Tower controller instructed the pilot to contact Jakarta Info.

At 0056 UTC the pilot contacted Jakarta Info officer and informed that the aircraft was on climbing and passing altitude of 3500 feet and requested to climb to 5500 feet, the pilot also informed the estimate time over point "PW" 0110 UTC and "CA" 0153 UTC.

At 0105 UTC the pilot reported that the aircraft has reached 5500 feet and position over point PW.

At 0119 UTC the pilot reported to Cakra Tower of Cakrabhuana Airport, Cirebon that the aircraft was over VIRAN heading to "CA" and estimated over "CA" was at 01.53 UTC.

At 0121 UTC the pilot requested to climb to 7500 feet due to bad weather and was approved by Jakarta Info officer.

At 0129 UTC Jakarta Info officer suggested the pilot to contact to Cakra Tower. The pilot replied that they had established communication with Cakra Tower and was maintaining 7500 feet.

At 0140 UTC Jakarta Info operator noticed that PK-NIP had disappeared from radar screen.

At 0320 UTC, a Nusa Flying International (NFI) staff contacted Halim Tower staff and informed that PK-NIP was lost contact with Cakra Tower. Halim Tower staff contacted National Search and Rescue Agency (BASARNAS). BASARNAS immediately initiated the search operation by three Indonesia Air Force helicopters.

After being searched for five days, on 28 November 2011, the aircraft position was identified by local villagers and reported to local police station. The aircraft was found at Ceremai Mountain, Majalengka - West Java on coordinate 06° 53' 30" S, 108° 23' 15" E at elevation approximately 2400 meter, or approximately on bearing 228° and 12 nautical miles from Cakrabhuana Airport.

All occupants were fatally injured and the aircraft suffered severe damage.

A witness on the ground, saw the aircraft flew into the cloud and not long after that he heard an impact sound. Flying inside the cloud might reduce the pilots visibility and loss the visual references to the ground.

The wreckage indicated that the engine was still operating and the aircraft was on level flight prior to impact.

This accident classified as Control Flight Into terrain (CFIT).

Following this accident, the National Transport Safety Committee (NTSC) issued safety recommendation to Nusa Flying International (NFI).

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# 1 FACTUAL INFORMATION

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## 1.1 History of the Flight

On 16 November 2011 Cessna 172 registration PK-NIP operated by Nusa Flying International (NFI) conducted a flight for training cross country three angle exercises from Halim – Cirebon – Budiarto. The flight was planned as VFR flight via route HLM – BARUS – PW – CA – IMU – KIMON – HLM – BTO.

At 0031 UTC the aircraft started taxi to runway 24 Halim Perdanakusuma Airport and departed at 00.40 UTC. On board in this flight were one Flight Instructor and two student pilots.

At 0050 UTC the pilot reported to Halim Tower controller that the aircraft position over BARUS and estimated PW at 0110 UTC. Halim Tower controller instructed the pilot to contact Jakarta Info.

At 0056 UTC the pilot contacted Jakarta Info officer and informed climb passing altitude 3500 feet and requested to climb to 5500 feet and informed estimate time over point PW 0110 UTC, CA 0153 UTC.

At 0105 UTC the pilot reported that the aircraft has reached 5500 feet and position over point PW.

At 0119 UTC the pilot reported to Cakra Tower that the aircraft was over VIRAN heading to CA and estimated over CA at 01.53 UTC.

At 0121 UTC the pilot requested to climb to 7500 feet due to bad weather and was approved by Jakarta Info officer.

At 0129 UTC Jakarta Info officer suggested the pilot to contact to Cakra Tower (Cakra Buwana Airport). The pilot replied that they had established communication with Cakra Tower and was maintaining 7500 feet.

At 0140 UTC Jakarta Info operator noticed that PK-NIP has disappeared from radar screen.

At 0320 UTC, a Nusa Flying International (NFI) staff contacted Halim Tower staff and informed that PK-NIP was lost contact with Cakra Tower. Halim Tower staff contacted National Search and Rescue Agency (BASARNAS). BASARNAS immediately initiated the search operation by three Indonesia Air Force helicopters.

The search operation was coordinated by BASARNAS and assisted by Indonesian Police, Naval, mountain climber association (Wanadri) and local villagers. The search area was spread around suspected area in West Java, especially on un-populated area such as Mount Tangkuban Parahu, Mount Burangrang, and Mount Ceremai.

A local villager at Cikaracak Village near Mount Ceremai, was working at his field saw the aircraft flew over the area. He saw the aircraft flew into a cloud. He then continued his works. A few moments latter, he heard a loud bank came from the aircraft flight path. He assumed that the aircraft had crash. He the reported the local police station of the aircraft he saw.

The next following day, the witness and some other villagers from Cikaracak under coordination of the local police station, searched the aircraft position. After searched for five days, they located the aircraft position and reported to local police station.

The aircraft was found on 28 November 2011 at Ceremai Mountain, Majalengka - West Java on coordinate 06° 53' 30" S, 108° 23' 15" E at elevation approximately 2400 meter, or approximately on bearing 228° and 12 nautical miles from Cakrabhuana Airport.

All occupants were fatally injured and the aircraft suffered severe damage.

## 1.2 Injuries to Persons

Injuries	Crew	Passenger	Total in Aircraft	Others
Fatal	3	-	3	-
Serious	-	-	-	-
Minor/None	-	-	-	-
TOTAL	3	-	3	-

## 1.3 Damage to Aircraft



Figure 1: The aircraft has severely damaged

The aircraft suffered severely damage, mostly on the forward side up to the wing leading edge. The aircraft engine was buried on the ground.

## **1.4 Other Damage**

There was no other damage to property.

## **1.5 Personnel Information**

### **1.5.1 Pilot in command**

Gender	:	Male
Date of birth	:	19 January 1986
Marital status	:	Married
Nationality	:	Indonesia
License	:	CPL
Date of issue	:	30 June 2010
Valid to	:	18 November 2012
Aircraft type rating	:	Cessna 172 & DHC-6
Medical certificate	:	Class I
Date of medical	:	11 November 2011
Valid to	:	11 November 2011
Last proficiency check	:	18 November 2011
Total hours	:	821 hours 21 minutes
This make and model	:	606 hours 06 minutes
Last 90 days	:	113 hours 42 minutes
Last 7 days	:	12 hours 04 minutes
Last 24 hours	:	01 hours 30 minutes
This flight	:	50 minutes

### **1.5.2 Student 1**

Gender	:	Male
Date of birth	:	10 February 1981
Nationality	:	Indonesia
Marital status	:	Married
License	:	PPL
Date of issue	:	08 June 2011
Valid to	:	08 June 2012
Aircraft type rating	:	Cessna

Medical certificate	: 04 February 2011
Date of last medical	: 04 February 2010
Valid to	: 14 February 2012
Last proficiency check	: 05 February 2011
Total hours	: 120 hours 05 minutes
This make and model	: 120 hours 05 minutes
Last 90 days	: 94 hours 30 minutes
Last 7 days	: 10 hours 54 Minutes
Last 24 Hours	: 49 Minutes
This flight	: 50 minutes

### **1.5.3 Student 2**

Gender	: Male
Date of birth	: 10 April 1993
Nationality	: Indonesia
Marital status	: Single
License	: PPL
Date of issue	: 04 March 2011
Valid to	: 05 October 2012
Aircraft type rating	: Cessna
Medical certificate	: October 2011
Date of last medical	: 04 February 2010
Valid to	: 14 February 2012
Last proficiency check	: 04 February 2011
Total hours	: 125 hours
This make and model	: 125 hours
Last 90 days	: 67 hours
Last 7 days	: 11 hours 05 Minutes
Last 24 Hours	: 1 hour
This flight	: 50 minutes

## **1.6 Aircraft Information**

### **1.6.1 General**

Aircraft Registration	: PK-NIP
Country of Manufacturer	: United State of America

Manufacturer : Cessna Aircraft Company  
Type/ Model : Cessna 172M  
Serial Number : 172-65519  
Year of Manufacture : 1975  
Certificate of Airworthiness : 17265519  
Valid to : 28 April 2012  
Certificate of Registration : 17265519  
Valid to : 28 April 2013  
Total flying hours since manufacture : 9868.38 hours  
Total cycle since new : 5267 cycles

### **1.6.2 Engines**

Engine type : PT6A- 114A  
Manufacturer : Lycoming  
Model : Piston Engine  
Part Number : 3044000  
Serial Number : RL-15215-27E  
Time Since New (TSN) : 1751.46 hours  
Cycle since new :

### **1.6.3 Propeller**

Engine type : PT6A- 114A  
Manufacturer : Mc Cauley  
Model : IC 160  
Serial Number : ADL 4406A  
Time Since New (TSN) : 1456.47 hours  
Cycle since new :

## **1.7 Meteorological Information**

Weather report for Jatiwangi Meteorologi Station, Cirebon issued on 16 November 2011.

Surface wind : Calm  
Visibility : 8 Km  
Precipitation : HZ

Cloud Type, amount and base : 3/8

## **1.8 Aids to Navigation**

Not relevant to this accident.

## **1.9 Communications**

Communications between air traffic services (ATS) and the crew was normal and no communication difficulty. Last contact communication held at 01.29 UTC while the pilot reported that they had established communication with Cakra Tower and was maintaining 7500 feet. There was no report of any aircraft malfunction or distress message.

## **1.10 Aerodrome Information**

Not relevant to this accident

## **1.11 Flight Recorders**

The aircraft was not equipped a cockpit voice recorder (CVR) and a Flight Data Recorder (FDR). These recorders were not required by current Indonesia regulation for this type of aircraft.

## **1.12 Wreckage and Impact Information**

The aircraft found impacted to 70 degrees slope ridge of mount Ceremai at 2400 meters. The wing leading edges were found dent on an angle of approximately 70 degrees.



**Figure 2: Damage on the wing leading edge and forward section.**





**Figure 3: Scratch marks found on the propeller leading edge.**

### **1.13 Medical and Pathological Information**

Autopsy was not performed for all pilots.

### **1.14 Fire**

There was no evidence pre or post impact fire.

### **1.15 Survival Aspects**

All aircraft occupants were fatally injured as result of impact.

The aircraft was equipped with emergency locator transmitter (ELT 406 MHz), which capable of transmitting to 3 different frequencies: 406 MHz, 121.5 MHz, and 243 MHz. The placard showed the battery expired date on May 2015

No distress signal was received by BASARNAS.

The ELT was found intact to the airframe, however, the antenna was found detached from the unit. The separation from the antenna from the unit has disabled the unit of transmission, hence there was no distress signal transmitted.



**Figure 4: The ELT installation used double tape instead of fastener**



**Figure 5: The antenna detached from the ELT unit.**

## **1.16 Tests and Research**

Not relevant for this investigation.

## **1.17 Organizational and Management Information**

Aircraft Owner : Nusa Flying International (NFI)

Aircraft Operator : PT. Nusa Flying International  
Terminal building 2nd floor No. A04/PK Halim  
Perdana Kusuma International.

Air Operator Certificate Number: AOC/141-007

## 1.18 Additional Information

CASR 91.155 Basic VFR weathers minimums.

<b>Airspace</b>	<b>Flight Visibility</b>	<b>Distance from clouds</b>
Class A	Not applicable	Not applicable
Class B	8 Km above 10.000 feet and 5 km below 10.000 feet	Clear of clouds
Class C	8 Km above 10.000 feet and 5 km below 10.000 feet	1,000 feet above 1,000 feet above 1,500 meters horizontal
Class F	8 Km above 10.000 feet and 5 km below 10.000 feet  The higher of; 3000 feet AMSL 5 km, or 1000 feet AGL in sight	1,000 feet above 1,000 feet above 1,500 meters horizontal Clears of clouds
Class G	8 Km above 10.000 feet and 5 km below 10.000 feet  The higher of; 3000 feet AMSL 5 km, or 1000 feet AGL in sight	1,000 feet above 1,000 feet above 1,500 meters horizontal Clears of clouds

## 1.19 Useful or Effective Investigation Techniques

The investigation is being conducted in accordance with the NTSC 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 ANALYSIS

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At 0121 UTC the pilot requested to climb to 7500 feet due to bad weather. This indicated that weather en-route was cloudy. Climb to 7500 feet was the pilot effort to avoid cloudy condition.

A local villager at Cikaracak Village near Mount Ceremai saw the aircraft flew into a cloud, a few moments later he heard a loud bank came from the aircraft flight path.

The aircraft has off to the right from the flight track. Possibly the pilot tried to avoid cloud by flying off track. The aircraft then flew into the cloud which might result to reduce the pilot vision to the ground and obstacle. It was contrary to CASR 91.155 which requires certain distance to cloud for VFR flight.

The aircraft found impacted to 70 degrees slope ridge of mount Ceremai at approximately 2400 meters. The wing leading edges were found dent on an angle of approximately 70 degrees. The symmetrical of the slope ridge and the damage on the aircraft wing leading edge suggested that aircraft was in level position during the impact. This might occur when the aircraft was on cruising flight. The impact altitude was at approximately 2400 meter or approximately 7800 feet while the reported the cruising altitude was 7500 feet.

The aircraft suffered severely damage, mostly on the forward side up to the wing leading edge. The aircraft engine was buried on the ground. Scratch marks found on the propeller leading edge indicated that the propellers were still running during the impact (*see figure.3*). This indicated that the engine was still running during the impact. This supported by the fact that there was no report of any aircraft malfunction or distress message.

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## **3 CONCLUSIONS**

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### **3.1 Findings**

- The aircraft was airworthy prior the departure.
- The aircraft had a valid Certificate of Airworthiness.
- All pilots held valid licenses and qualified for the flight in accordance with existing Indonesia regulations.
- The weather on route was cloudy.
- There was no evidence of in-flight or post impact fire.
- The aircraft was seen fly into the cloud.
- The pilot might have reduces their vision to the ground while flying in the cloud.
- The impact information suggested that the aircraft was on level flight while impacted the terrain.
- There was no evidence of aircraft system failure or malfunction.
- The ELT was improperly installed (Using only double tape) detached from the airframe as result of impact.
- There was no distress message.

### **3.2 Factors**

The flight was in IFR however a witness saw the aircraft flew into the cloud toward ceremai mountain, it was possibly, the pilots had lost of visual references to the ground prior to impact.

This accident classified as Controlled Flight Into terrain (CFIT).

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## **4 SAFETY ACTIONS**

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At the time of issuing this Draft Report, the National Transportation Safety Committee had not been informed of any safety action resulting from this accident.

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## **5 SAFETY RECOMMENDATIONS**

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As a result of this accident investigation, the National Transportation Safety Committee issued the following recommendations prevent similar occurrence in the future.

### **5.1 Recommendation to PT. Nusa Flying International**

The National Transportation Safety Committee (NTSC) recommends to PT. Nusa Flying International should:

- Provide weather information adequate for each flight.
- Emphasis of a VFR flight should be performed in Visual Meteorological Condition (VMC).