FINAL
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NATIONAL TRANSPORTATION SAFETY COMMITTEE

Aircraft Accident Investigation Report

Aero Flyer Institute

Cessna 172 ; PK–HAF

Cakrabhuwana Airport, Cirebon, West Java

Republic of Indonesia

4 March 2011

NATIONAL TRANSPORTATION SAFETY COMMITTEE
MINISTRY OF TRANSPORTATION
REPUBLIC OF INDONESIA
2011

This Final Report was produced by the National Transportation Safety Committee (NTSC), Ministry of Transportation Building 3rd Floor, 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 Organisation, the Indonesian Aviation Act (UU No. 1/2009) and Government Regulation (PP No. 3/2001).

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GLOSSARY OF ABBREVIATIONS

AMSL	:	Above Mean Sea Level
ATS	:	Air Traffic Service
°C	:	Degrees Celsius
CASR	:	Civil Aviation Safety Regulation
CPL	:	Commercial Pilot License
COM	:	Company Operation Manual
CRM	:	Cockpit Recourses Management
CSN	:	Cycles Since New
DGCA	:	Directorate General Civil Aviation
ICAO	:	International Civil Aviation Organization
ICAI / *STPI*	:	Indonesia Civil Aviation Institute / *Sekolah Tinggi Penerbangan Indonesia*
Km	:	Kilometer(s)
LT	:	Local Time
MTOW	:	Maximum Take-off Weight
NM	:	Nautical mile(s)
NTSC / *KNKT*	:	National Transportation Safety Committee / *Komite Nasional Keselamatan Transportasi*
QFE	:	Height above airport elevation (or runway threshold elevation) based on local station pressure
QNH	:	Altitude above mean sea level based on local station pressure
STC	:	Supplemental Type Certificate
TT / TD	:	Ambient Temperature / Dew Point
UTC	:	Universal Time Coordinate
WIB	:	*Waktu Indonesia Barat* / West Indonesian Standard Time

INTRODUCTION

SYNOPSIS

On 4 March 2011, a Cessna 172 aircraft, registered PK-HAF, was being operated by Aero Flyer Institute for a series of Touch and Go exercise flight in the Cakrabhuwana Airport (CBN / WICD), Cirebon, West Java.

The aircraft was airworthy prior to the flight training.

At 01.11 UTC[1] (08.11 LT) the aircraft take off used runway 04, the pilot get information from ATC about weather condition was good and visibility 6-8 Km.

The first and the second touch and go were conducted safely. At 01.26 UTC (08.26 LT) on the third touch and go, the pilot requested to the ATC to make a short approach exercise. When the aircraft joining left downwind abeam end of runway 04, the instructor sets the engine to the minimum power. On short final runway 04 the pilot assumes that the aircraft could not make perfect landing and then the pilot take over the aircraft.

While the aircraft still continuing descend, pitch down and bank to the left the pilot apply full power as part of Go Around procedure. As the aircraft gaining more thrust, speed and rate of descend accelerated, and increasing spiralling slipstream of the propeller to the vertical stabilizer caused the aircraft more roll to the left, and the left wing tip hit the runway followed by propeller and nose wheel.

The aircraft veered to the left and out of the runway, the aircraft stopped on left shoulder opposite the landing direction runway 04, at the coordinate of 6º44'11''S 108º33'50"E.

At 01.29 UTC (08.29 LT) the pilot reported to the ATC that the aircraft was crash landed. After received this report the ATC push the crash bell and informed the fire fighter to evacuate the pilot. The ATC could not observe the accident site due to the view from tower to runway is obscured by tress.

While the crash bell ringing the fire fighters immediately deployed to the accident site. The occupants evacuated from the aircraft by themselves since no one were injured.

There were 3 persons on board; one pilot and two students, and no one was injured on this accident.

1 The 24-hour clock is used in this report to describe the local time of day, Waktu Indonesia Barat (WIB) or West Indonesian Standard Time, as particular events occurred. WIB is Coordinated Universal Time (UTC) + 7 hours.

1 FACTUAL INFORMATION

1.1 History of the flight

On 4 March 2011, a Cessna 172 aircraft, registered PK-HAF, was being operated by Aero Flyer Institute on a series of Touch and Go exercise flight on Cakrabhuwana Airport (CBN / WICD), Cirebon, West Java.

At 01.11 the aircraft take off used runway 04, the pilot get information from ATC about weather condition was good and visibility 6 – 8 Km.

The first and the second touch and go were conducted safely. At 01.26 on the third touch and go, the pilot requested to the ATC to make a short approach exercise. When the aircraft joining left downwind abeam end of runway 04, the instructor sets the engine to the minimum power. On short final runway 04 the pilot assumes that the aircraft could not make perfect landing and then the pilot take over the aircraft.

During go around, the pilot increased power to maximum while the aircraft still continuing descend and bank to the left, then the left wing tip impacted the runway followed by propeller and nose wheel.

The aircraft veered to the left and out of the runway, the aircraft stopped on left shoulder opposite the landing direction runway 04, at the coordinate of 6º 44’ 11’’ S 108º 33’ 50” E.

At 01.29 the pilot reported to the ATC that the aircraft was crash landed. After received this report the ATC push the crash bell and informed the fire fighter to evacuate the pilot. The ATC could not observe the accident site due to the view from tower to runway is obscured by tress.

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Figure 1: The last aircraft position

1.2 Injuries to Persons

Injuries	Instructor Pilot	Student Pilot	Total in Aircraft
Fatal	-	-	-
Serious	-	-	-
Minor/None	1	2	-
TOTAL	1	2	-

1.3 Damage to Aircraft

The aircraft was substantially damage. The details of the damages are as follows:

- Nose landing gear detached from fuselage;
- Both wing tips were damaged;
- Propeller blades bent backward and one of the blade was detached;
- Right main landing gear bending outward;
- Engine mounting shifted to the right;
- Fuselage wrinkled and bent to the right.

1.4 Other Damage

The runway surface was scratched at the propeller impact point.

Figure 2: Scratch on the runway surface

1.5 Personnel Information

1.5.1 Pilot in command (Pilot Instructor)

Gender	:	Male
Date of birth	:	11 January 1974
Nationality	:	Indonesia
Marital status	:	Married
Date of joining company	:	February 2008
License type	:	Commercial Pilot License
Validity	:	20 July 2011
Aircraft type rating	:	Boeing 737-200, Boeing 737-300/400/500, Cessna 172
Flight instructor certificate		
Validity	:	24 August 2012
Medical certificate	:	First Class (the pilot shall wear corrective lenses)
Date of medical examination	:	20 January 2011
Validity	:	20 July 2011

Last proficiency check	:	20 July 2010
Flight Time		
Total hours	:	3,600 hours
Last 90 days	:	190 hours
Last 60 days	:	150 hours
Last 24 hours	:	6 hours
This flight	:	20 minutes

1.5.2 Student Pilot #1

Gender	:	Male
Date of birth	:	29 May 1985
Nationality	:	Indonesia
Marital status	:	Single
License type	:	Student Pilot License
Validity	:	27 January 2012
Medical certificate	:	Second Class
Date of medical examination	:	28 January 2011
Validity	:	28 January 2012
Flight Time		
Total hours	:	06 hours 56 minutes
Last 90 days	:	06 hours 56 minutes
Last 60 days	:	06 hours 56 minutes
Last 24 hours	:	01 hours 10 minutes
This flight	:	20 minutes

1.6 Aircraft Information

1.6.1 General

Aircraft Registration	:	PK-HAF
Country of Manufacturer	:	USA
Manufacturer	:	Cessna
Type/ Model	:	C 172 I
Serial Number	:	17259909
Year of Manufacture	:	1975
Certificate of Airworthiness	:	2380

Valid to	:	20 March 2011
Certificate of Registration	:	2380
Valid to	:	14 March 2013
Time Since New (TSN)	:	8,883 hours 28 minutes
Last Minor Inspection	:	50 hours inspection

1.6.2 Engine

Engine type	:	Piston engine
Manufacturer	:	Textron Lycoming
Model	:	O-320-E2D
Serial Number	:	L-14308-27AE
Time Since New	:	5,718 hours 50 minutes
Cycle Since New	:	1838. 43 cycles

1.6.3 Propeller

Propeller type	:	Fixed pitch
Manufacturer	:	McCauley
Propeller Model Number	:	1C 160 / DTM 7557

1.6.4 Weight and Balance

The aircraft was being operated within the approved weight and balance limitations.

1.7 Meteorological Information

The weather at Cakrabhuwana Airport, Cirebon at 01.00 UTC observed visually by the Aerodrome Flight Information Services (AFIS) controller on duty was as follow:

Wind	:	Calm
Visibility	:	6 – 8 km
Weather	:	Nil

1.8 Aids to Navigation

Not relevant to this accident.

1.9 Communications

At the time of the occurrence all the communication between the flight crew and AFIS controller was normal. This consider not relevant to this accident.

1.10 Aerodrome Information

Aerodrome Code	:	CBN / WICD
Airport Name	:	Cakrabhuwana Airport
Airport Address	:	Jl. Jenderal Sudirman, Cirebon 45144, West Java, Indonesia
Airport Authority	:	Directorate General of Civil Aviation
Aerodrome Category	:	Class IV
Airport Service	:	Aerodrome Control Services (ADC)
Type of Traffic Permitted	:	VFR
Coordinates	:	06° 45′ 22″ S, 108° 32′ 18″ E
Elevation	:	83 feet
Runway Length	:	1,400 meters
Runway Width	:	30 meters
Stop way	:	60 meters (RWY 04) 30 meters (RWY 22)
Azimuth	:	04 / 22

1.11 Flight Recorders

The aircraft was not fitted with a Flight Data Recorder (FDR) or Cockpit Voice Recorder (CVR). Neither recorder was required by current Indonesian civil aviation regulations.

1.12 Wreckage and Impact Information

During go around the aircraft was banking to the left, and then the left wing impacted the runway followed by propeller and nose wheel.

The scratch mark was found on the runway 04.

The aircraft stopped on left shoulder about 23 meters from runway centreline and 165 meters from beginning runway 04 with the aircraft heading opposite the landing direction runway 04. There was a paint mark indicated of the first impact of the left wing tip to the runway.

Figure 3: The left wing tip paint mark

1.13 Medical and Pathological Information

Not relevant to this accident.

1.14 Fire

There was no indication of pre or post impact fire.

1.15 Survival Aspects

While the crash bell ringing the fire fighters immediately deployed to the accident site.

The occupants evacuated from the aircraft by themselves since no one were injured.

This accident was survivable.

1.16 Tests and Research

Not relevant to this accident.

1.17 Organisational and Management Information

Aircraft Owner	:	Aero Flyer Institute
Aircraft Operator	:	Aero Flyer Institute
Address	:	Komplek Pergudangan Bandara Mas Blok A-10/No. 7, Neglasari Tangerang 15127 - Indonesia
Operator Certificate Number	:	141/003

1.18 Additional Information

One week after this accident, the NTSC commenced an investigation into another accident involving accident involving Aero Flyer Institute Cessna 172 aircraft registration PK-HAI dated 12 March 2011. Please refer to NTSC investigation report KNKT.11.03.09.04.

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.

2 ANALYSIS

While the aircraft still continuing descend, pitch down and bank to the left the pilot apply full power as part of Go Around procedure. As the aircraft gaining more thrust, speed and rate of descend accelerated, and increasing spiralling slipstream of the propeller to the vertical stabilizer caused the aircraft more roll to the left.

Then the left wing tip hit the runway followed by the propeller and its nose wheel.

3 CONCLUSIONS

3.1 Findings

- The aircraft was airworthy prior to flight training.
- The aircraft doing a touch and go exercise flight, the left wing touch to the runway.
- Both wing tips were damaged.
- Propeller blades bent backward and one of the blades was detached.
- The runway surface was scratched at the propeller impact point.
- Nose landing gear detached from fuselage and right main landing gear bending outward.
- Engine mounting shifted to the right.
- Fuselage wrinkled and bent to the right.

3.2 Causes

During the short approach exercises the aircraft over turn on the base leg and final. The aircraft banked to the left and pitch down on short final approach, the engine power was increased to maximum for go around at low altitude.

The left wing tip, the propeller blades, and the nose landing gear hit the runway

4 SAFETY ACTIONS

At the time of issuing this Preliminary Accident Investigation Report,

4.1 The Aero Flyer Institute

The Aero Flyer Institute has been performed safety actions related to this accident, as follows:

1. Briefing and indoctrination of Standard Operating Procedure for the flight instructor.
2. Recurrent training on the principles of flight and flight technique subject.
3. Improve standard flight training, conducted flight training and proficiency check for the flight instructor.
4. Review of requirement for the flight instructor.

4.2 The Directorate General Civil Aviation

The Directorate General Civil aviation has been performed safety actions related to this accident, as follows:

1. Had reviewed SOP, Standard flight training, standard proficiency, and requirement in the Aero Flyer Institute.

5 SAFETY RECOMMENDATIONS

As a result of this investigation, the National Transportation Safety Committee issued recommendations to address safety issues identified in this report, as follows:

5.1 Recommendations to Directorate General Civil Aviation:

The National Transportation Safety Committee recommends that the Directorate General Civil Aviation to Review the materials and test-related qualification training, knowledge and application about principles of flight for the flying school pilots in Indonesia.