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NATIONAL TRANSPORTATION SAFETY COMMITTEE

Aircraft Accident Investigation Report

Indonesian Civil Aviation Institute
Beech Sundowner C-23; PK-ANX
Budiarto Airport, Curug, Tangerang
Republic of Indonesia
27 November 2008

NATIONAL TRANSPORTATION SAFETY COMMITTEE
MINISTRY OF TRANSPORTATION
REPUBLIC OF INDONESIA
2013

This Final report was produced by the National Transportation Safety Committee (NTSC), 3rd 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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ABBREVIATIONS AND DEFINITIONS

AD	:	Airworthiness Directive
AOC	:	Air Operator Certificate
ATC	:	Air Traffice Control
BMKG	:	*Badan Meteorologi Klimatologi dan Geofisika* / Meterology Climatology and Geophysics Agency Indonesia
CASR	:	Civil Aviation Safety Regulation
CPL	:	Commercial Pilot License
CSN	:	Cycles Since New
DGCA	:	Directorate General Civil Aviation
DGI	:	Directorate Gyro Indicator
ICAO	:	International Civil Aviation Organization
MTOW	:	Maximum Take-Off Weight
KNKT/NTSC	:	*Komite Nasional Keselamatan Transportasi* / National Transportation Safety Committee
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
STPI/ICAI	:	*Sekolah Tinggi Penerbangan Indonesia* / Indonesia Civil Aviation Institute
TT/TD	:	Ambient Temperature/Dew Point
UTC	:	Universal Time Coordinate

INTRODUCTION

SYNOPSIS

On Thursday of 27 November 2008, a Beech Sundowner C-23 registered PK-ANX, was operation by Indonesia Civil Aviation Institute as a training solo flight. There was one person on board the aircraft as a student.

The aircraft landed used runway 22L. During landing roll, the student felt the vibration.

She was initiative to push the rudder pedal. However, she cannot pushed rudder pedal due to the seat was retract to the backward and then the aircraft un-controlled.

The aircraft has four times accident reported since the aircraft operation in the ICAI and has been repaired and maintenance.

The shimmy damper located in the nose wheel, and the function was to absorb the aircraft vibration during rolling. The investigation found the shimmy damper was not functional, caused there were vapor inside and then failed reduces the vibration during landing roll.

The pilot's seat has been lock with pin inserted into the hole track by the handle lock. The investigation found that the pin not inserted correctly in the hole track due to the handle improper lock.

As a result of this investigation, the National Transportation Safety Committee issued safety recommendations to the Indonesian Civil Aviation Institute.

1 FACTUAL INFORMATION

1.1 History of the Flight

On Thursday of 27 November 2008, a Beech Sundowner C-23 registered PK-ANX, was operation by Indonesia Civil Aviation Institute as a training solo flight. The aircraft was departure from Budiarto Airport (Curug) Tangerang at 04:40 UTC[1] (11:40 LT).

There was one person on board the aircraft as a student.

The aircraft landed used runway 22L and experience of a cross-wind 12 knots and direction 270°. During landing roll, the student felt the excessive vibration on the nose wheel.

She was initiative to push the rudder pedal. However, she cannot pushed rudder pedal due to the seat was retract to the backward and then the aircraft un-controlled.

The aircraft stopped about 929 meters from the end of runway 22L.

The student's pilot was uninjured.

1.2 Injuries to Persons

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

There were no injuries to persons as a result of this occurrence.

1.3 Damage to Aircraft

The aircraft was substantial damaged.

1 The 24-hour clock in Universal Time Coordinate (UTC) is used in this report to describe the local time as specific events occurred. Indonesia Western Standard Time (*Waktu Indonesia Barat*/ WIB) is UTC +7 hours.

1.4 Other Damage

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

1.5 Personnel Information

1.5.1 Student's pilot

Gender	:	Female
Age	:	Unknown
Nationality	:	Indonesia
Marital status	:	Unknown
License	:	Student pilot license

1.6 Aircraft Information

1.6.1 General

Registration Mark	:	PK-ANX
Manufacturer	:	Beechraft Aircraft Manufacturer
Country of Manufacturer	:	United State of America
Type/ Model	:	Sundowner C-23
Serial Number	:	M-1700
Year of manufacture	:	1975
Certificate of Airworthiness		
Validity	:	1 August 2009
Certificate of Registration		
Validity	:	20 October 2009
Time Since New	:	11,595 hours
Cycles Since New	:	30,329 cycles
Last Minor Check	:	50 hours dated 30 January 2008

During the aircraft take-off roll, there was no vibration reported. However, when the aircraft landing roll, the pilot felt the aircraft vibration.

The investigation found that the hydraulic of the shimmy damper was leakage.

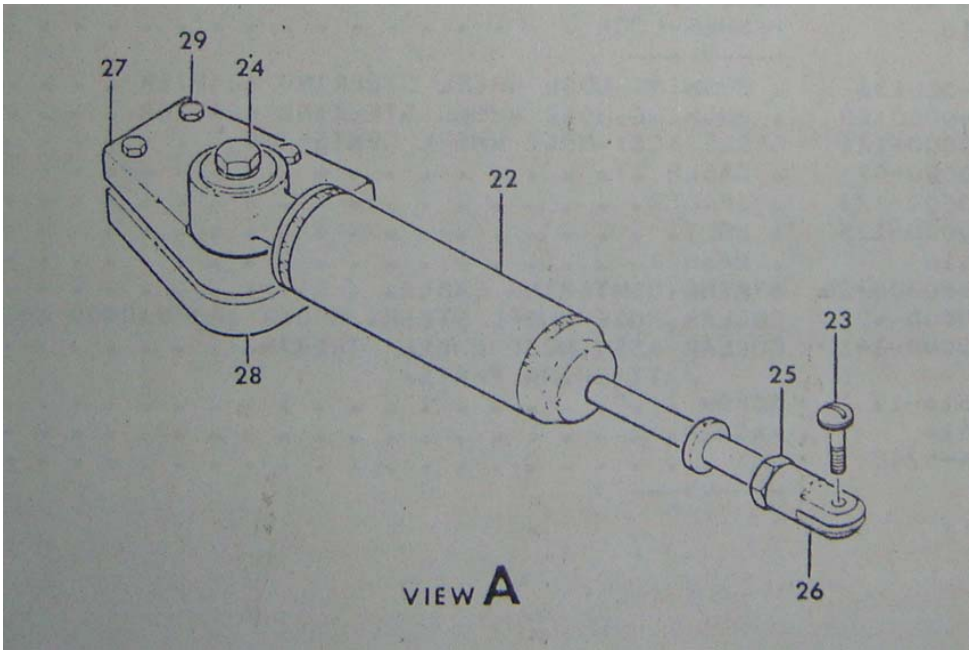

Figure 1: The shimmy damper scheme

1.6.2 Engines

Manufacturer	:	Textron Lycoming
Type/Model	:	O-360 A4G
Serial Number	:	L-31522-36A
▪ Time Since New	:	3,353 hours
▪ Cycles Since New	:	
▪ Time Since Overhaul	:	1,423 hours 24 minutes
▪ Time Between Overhaul	:	2,000 hours

1.6.3 Propellers

Manufacturer	:	Sensenich Corp.
Propeller	:	Fixed Pitch Propeller
Type/Model	:	76 EM 855-O-60
Serial Number	:	27844 K
▪ Time Since New	:	1,423 hours 24 minutes
▪ Time Between Overhoul	:	2,000 hours

1.6.4 Aircraft Maintenance

The aircraft was airworthy; there was no indication of mal-function. There were no reported that any trouble or mal-function on the aircraft maintenance log.

1.7 Meteorological Information

Weather Report for Budiarto Airport, issued 247 November 2011, at 0400 UTC as follows:

Wind	:	270 degree / 12 knots
Visibility	:	15 Km
Weather	:	Nil
Cloud	:	3 CU 1800
TT / TD	:	35°C / 24°C
Humidity	:	49%
QNH / QFE	:	1010 / 1005

1.8 Aids to Navigation

Ground-based navigation aids / onboard navigation aids / aerodrome visual ground aids and their serviceability were not a factor in this occurrence.

1.9 Communications

The flight crew had no difficulty communicating with air traffic control during the flight Communications between air traffic services (ATS) and the crew was normal and no communication difficulty.

1.10 Aerodrome Information

Airport Name	:	Budiarto Airport		
Airport Identification	:	WICB		
Airport Operator	:	Directorate General Civil Aviation		
Coordinate	:	06° 17’ 36” S 106° 34’ 06” E		
Elevation	:	151 feet		
Runway Direction	:	04R – 22L	04L – 22R	12 – 30
Runway Length	:	1,660 meters	1,100 meters	1,800 meters
Runway Width	:	30 meters	30 meters	30 meters
Surface	:	Asphalt		

1.11 Flight Recorders

The aircraft was not fitted with a flight data recorder or cockpit voice recorder. Neither recorder was required by current Indonesian civil aviation regulations.

1.12 Wreckage and Impact Information

1.12.1 Wing

The left wing was dent and the wing tip was broken.

Figure 2: The left wing was dent and the wing tip was broken

1.12.2 Propeller

The one propeller was bent rearward.

Figure 3: One of the propellers was dent

1.12.3 Fuselage

There was no damaged on the fuselage.

Figure 4: The aircraft fuselage condition after occurrence

The lower engine cowling was broken.

Figure 5: The lower engine cowling condition after occurrence

1.12.4 Nose wheel

The nose wheel was broken.

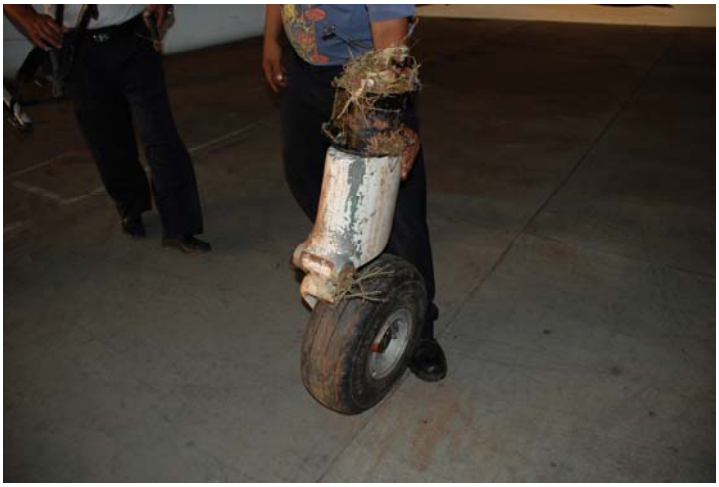

Figure 6: The nose wheel was damaged

1.13 Medical and Pathological Information

No medical or pathological investigations were conducted as a result of this occurrence, nor were they required.

1.14 Fire

There was no evidence of fire in-flight or after the aircraft impacted terrain.

1.15 Survival Aspects

The aircraft was crashed in the runway 22L Budiarto airport. After the aircraft crashed, the student escapes from the aircraft.

1.16 Tests and Research

Apart from fuel testing, no other tests or research were required to be conducted as a result of this occurrence.

1.17 Organizational and Management Information

Aircraft Owner : Indonesia Civil Aviation Institute (STPI[2])

Aircraft Operator : Sekolah Tinggi Penerbangan Indonesia (STPI)
Budiato Airport Curug, Tangerang
Republic of Indonesia.

2 Sekolah Tinggi Penerbangan Indonesia

The operator was an approved flying training organisation under CASR Part 141, and the holder of Certificate Number 141/001.

Civil Aviation Safety Regulation (CASR) 91, subpart 91.107 included the requirements for the use of Seats, Safety Belts, Shoulder Harnesses, and Child Restraint Systems, as follows:

> (a) Unless otherwise authorized by the Director the following rules apply to all Indonesian-registered civil aircraft except a free balloon that incorporates a basket or gondola, or an airship.
>
> (1) No pilot may takeoff an aircraft unless the pilot in command of that aircraft ensures that each person on board is briefed on how to fasten and unfasten that person's safety belt and, if installed, that person's shoulder harness.
>
> (2) No pilot may cause to be moved on the surface, takeoff, or land an aircraft unless the pilot in command of that aircraft ensures that each person on board has been notified to fasten his or her safety belt and, if installed, his or her shoulder harness.
>
> (3) Except as provided in this paragraph, each person on board an aircraft must occupy an approved seat or berth with a safety belt and, if installed, shoulder harness, properly secured about him for her during movement on the surface, for takeoff, and for landing.

1.18 Additional Information

1.18.1 The aircraft accident data

The aircraft has fourth accident reported since the aircraft operation in the ICAI and has been repaired and maintenance.

No.	Date	Detail of Accident	
01.	14 October 1981	Dual Flight	R/W 04 R, Hard Landing
02.	20 May 1992	Solo Flight	R/W 12-30, Hard Landing
03.	25 April 2006	Pre Solo Flight	R/W 22L, Touch and Go
04.	27 November 2008	Solo Flight	R/W 22L, Cross Wind

1.18.2 Maintenance record

The maintenance log page number 0231327 dated 26 November 2008, there wre pilot and maintenance report as folow :

a. The Director Gyro Indicator was stuck, the Directtional Gyro was replaced

b. The nose wheel vibrates while landing, the shimmy dampre was replaced and tested normal and high speed taxi on the runway, then the aircraft released to service.

1.18.3 Pilot's seat

The pilot's seat can adjust forward and backward by the rail. The pilot's seat has been lock with pin inserted into the hole track by the handle lock.

The investigation found that the pin not inserted correctly in the hole track due to the handle improper lock. It's indication that the hole of the handle lock was worn-out.

Figure 7: The student's seat

Figure 8: The hole rail to inserted the pin

Figure 9: The locking handle to moved the seat forward and backward

Figure 10: The spring in the locking handle

1.19 Useful or Effective Investigation Techniques

The investigation was 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

During landing roll the aircraft was vibration due to the hydraulic of the shimmy was leakage. It could result failed to reduce the vibration during landing roll.

While the recovered by pushed the brake pedal the pilot seat moved rearward due to the locking mechamism was not engaged properly to the seat track.

The student instinctively reached for her control yoke in order to stop her seat shifting. At the same time, the student spontaneously pulled the yoke, and she could not controled the turning aircraft to the left that was effected by of propeller rotation.

3 CONCLUSIONS

3.1 Findings

1. The student pilot was a solo flight in the Budiarto area.
2. The aircraft was airworthy during flight, there was no indication of mal-function;
3. The aircraft has four times accident since the 1981. The aircraft has been repaired and maintenance.
4. The shimmy damper was leakage.
5. The pilot seat moved rearward due to the locking mechamism was not engaged properly to the seat track.

3.2 Causes/Factors

The student's seat had not been set and secured properly prior to the takeoff caused the locking pin loose and the pilot seat moved rearward.

4 SAFETY ACTION

At the time of issuing this final investigation report, the National Transportation Safety Committee had not been informed of any safety actions resulting from this occurrence.

5 SAFETY RECOMMENDATIONS

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

5.1 Indonesian Civil Aviation Institute

The National Transportation Safety Committee recommends that the Indonesian Civil Aviation Institute to ensure the pilot to set and secure properly the seat locking system prior take-off.

5.2 Indonesian Civil Aviation Institute

The National Transportation Safety Committee recommends that the Indonesian Civil Aviation Institute should maintain the shimmy damper properly.