

**FINAL**

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# **NATIONAL TRANSPORTATION SAFETY COMMITTEE**

**Aircraft Accident Investigation Report**

**Piper Seneca PA-34  
PK-JKS; PT. Air Transport Service**

**Kasiguncu Aerodrome  
Central Sulawesi  
Republic of Indonesia**

**7 December 2007**



**NATIONAL TRANSPORTATION SAFETY COMMITTEE  
MINISTRY OF TRANSPORTATION  
REPUBLIC OF INDONESIA  
2009**



This report was produced by the National Transportation Safety Committee (NTSC), Karya Building 7<sup>th</sup> Floor Ministry of Transportation, Jalan Medan Merdeka Barat No. 8 JKT 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, Aviation Act (UU No.1/2009), and Government Regulation (PP No. 3/2001).

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## GLOSSARY

|       |   |
|-------|---|
| AD    | Airworthiness Directives  |
| AGL   | Above Ground Level  |
| AMSL  | Above Mean Sea Level  |
| AOC   | Air Operator Certificate  |
| ATC   | Air Traffic Control   |
| ATPL  | Air Transport Pilot License   |
| CPL   | Commercial Pilot License  |
| CSN   | Cycles Since New  |
| CVR   | Cockpit Voice Recorder  |
| DGAC  | Directorate General of Air Communications   |
| DME   | Distance Measuring Equipment  |
| F/O   | first officer   |
| FDR   | Flight Data Recorder  |
| hrs   | time (24 hour clock)  |
| IFR   | Instrument Flight Rules   |
| IIC   | Investigator-In-Charge  |
| ILS   | Instrument Landing System   |
| kg    | kilogram(s)   |
| km    | kilometre(s)  |
| kts   | knots (nm/hour)   |
| mm    | millimetre(s)   |
| MTOW  | Maximum Take-Off Weight   |
| nm    | nautical mile(s)  |
| NTSC  | National Transportation Safety Committee  |
| °C    | degrees Celcius   |
| PIC   | Pilot-In-Command  |
| QFE   | Height above airport elevation (or runway threshold elevation)<br>based on local station pressure |
| QNH   | Altitude above mean sea level based on local station pressure                                     |
| RPM   | Revolutions Per Minute  |
| S/N   | Serial number   |
| TS/RA | thunder strom and rain  |
| TSN   | Time Since New  |
| TT/TD | ambient temperature/dew point   |
| UTC   | Universal Time Co-ordinated   |
| VFR   | Visual Flight Rules   |
| VMC   | Visual Meteorological Conditions  |
|       |   |

## **SYNOPSIS**

On Friday 7 December 2007, a Piper Seneca PA-34 aircraft, registration PK-JKS, was being operated by PT. Air Transport Service (ATS) on a flight from Makassar to Kasiguncu Airport, Poso City, Central Sulawesi. The aircraft departed from Makassar at 00:45 Coordinated Universal Time (UTC) and arrived at Kasiguncu at 01:55. There were 6 occupants; 1 pilot and 5 passengers.

During the landing on runway 21, the aircraft travelled normally for about 200 meters and then suddenly diverged left causing the propeller to strike the runway. Numerous slash marks from the three-bladed propeller were found for a distance of 100 meters on the runway. The left wing subsequently struck the runway, causing the aircraft to continue turning left through 90 degrees. The aircraft stopped on the grass shoulder of runway 21.

The airport's rescue fire fighting vehicle had been unserviceable since it was damaged during riots in 2004. Airport personnel went immediately to the accident site to offer assistance and brought portable fire fighting equipment. There was no fire. The pilot and his 5 passengers were uninjured.

The investigation determined that there was no evidence of any defect with the landing gear micro switches, or hydraulic system. The investigation was not able to conclusively determine the reason the landing gear unlocked and subsequently retracted.

The NTSC made recommendations to the Kasiguncu Airport operator and the Directorate General of Civil Aviation covering the airport emergency equipment, planning and response at Kasiguncu Airport.

# **1 FACTUAL DATA**

## **1.1 History of the Flight**

On Friday 7 December 2007, a Piper Seneca PA-34 aircraft, registration PK-JKS, was being operated by PT. Air Transport Service (ATS) on a flight from Makassar to Kasiguncu Airport, Poso City, Central Sulawesi. The aircraft departed from Makassar at 0045 Coordinated Universal Time (UTC)<sup>1</sup> and arrived at Kasiguncu at 0155. There were 6 occupants; 1 pilot and 5 passengers.

During the landing on runway 21, the aircraft travelled normally for about 200 meters and then suddenly diverged left causing the propeller to strike the runway. Numerous slash marks from the three-bladed propeller were found for a distance of 100 meters on the runway. The left wing subsequently struck the runway, causing the aircraft to continue turning left through 90 degrees. The aircraft stopped on the grass shoulder of runway 21.

The aerodrome personnel went immediately to the accident site to offer assistance and brought portable fire fighting equipment. There was no fire. The pilot and his 5 passengers were uninjured.

The pilot informed the investigation that he received weather information from Poso air traffic control (ATC), indicating that the weather for his arrival was clear, and the wind was calm. On arrival overhead Kasiguncu Airport he noted that the windsock was indicating calm conditions. He said that he decided to land on runway 21. During the final approach, while completing the final approach checklist, he noted that all indications were normal. The airspeed was 80 knots.

The pilot stated that the aircraft touched down on the runway number-21 marking. He said that during the landing roll, when the aircraft was about 200 meters beyond the touchdown point, and after completing the post-landing checks of flaps up and booster pump off, the aircraft began to lean to the left and the left propeller struck the runway many times. He said that the aircraft continued to lean to the left so he tried to steer the aircraft off the runway as quickly as possible. The aircraft left the runway with the left wing settled on the grass runway verge as the left main landing gear retracted.

An eye witness reported that the aircraft landed smoothly, but then it leaned to the left. He said that he thought that the aircraft was turning onto the apron, but then its wing hit the runway. He said that he ran to get the portable fire fighting gear because he was worried there would be a fire, but no fire started.

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<sup>1</sup> The 24-hour clock in Coordinated Universal Time (UTC) is used in this report to describe the local time as specific events occurred. Local time in the area of the departure airport, Central Indonesia Standard Time (Waktu Indonesia Tengah (WITA)) is UTC +8 hours.

## 1.2 Injuries to Persons

| Casualties       | Crew | Passengers | Other | TOTAL |
|------------------|------|------------|-------|-------|
| Fatal            | -    | -          | -     | -     |
| Serious Injuries | -    | -          | -     | -     |
| Minor Injuries   | -    | -          | -     | -     |
| Uninjured        | 1    | 5          | -     | 6     |
| Total            | 1    | 5          | -     | 6     |

## 1.3 Damage to Aircraft

### 1.3.1 Wings

- The wing tip had scrape abrasion marks and was cracked in several places.
- The two (outer and inner) aileron hinges had abrasion marks from dragging along the runway.
- The aileron was wrinkled on the trailing edge.
- The Flap trailing edge and flap trim tab sustained significant abrasion damage.



Figure 1: The Wing tip was partly scored and cracked.

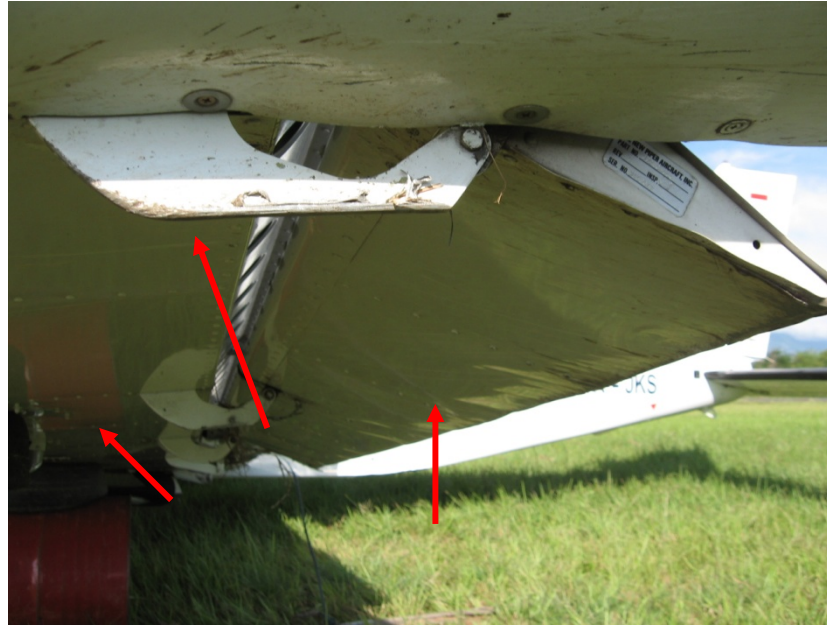


Figure 2 : The 2 (outer and inner) aileron bracket hinges were scraped on the runway surface.



Figure 3 : Damaged Flaps on the trailing edge .



Figure 4 : Flap Trim Tab damaged from runway scraping

### 1.3.2 Landing Gear

The nose and right main landing gear were not damaged and were found to be in the locked down position.

The Left main landing gear was in the retracted position. The tire only sustained minor scuff damage as a result of scraping on the runway.



Figure 5 : The Left MLG in its folded stored position

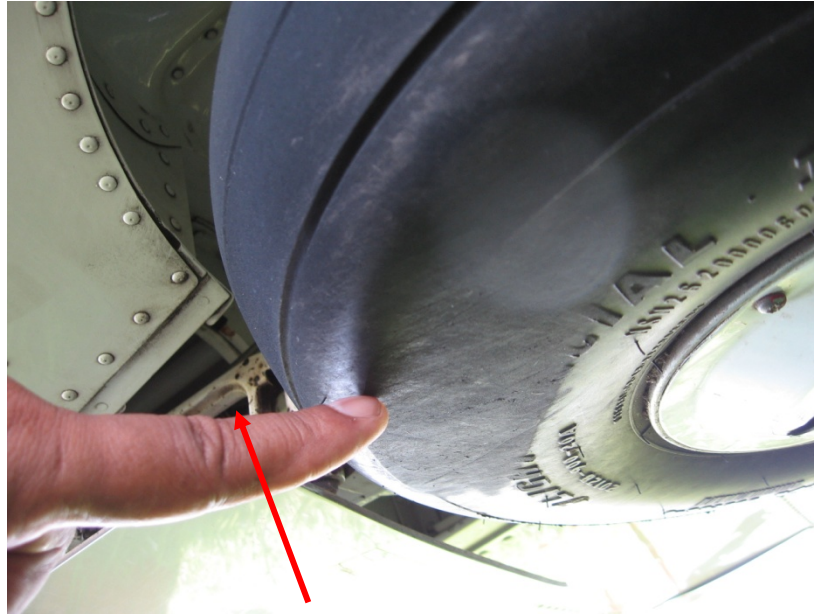


Figure 6 : The Left Tire, the outside of which scraped on the runway

### 1.3.3 The Fuselage

The fuselage under the rear left cabin door sustained damage to skins and frames; 60 centimeters in length. The ADF Antenna was significantly damaged due to scraping on the runway.



Figure 7 : The Cabin Skin Former underneath the passenger door



Figure 8 : The ADF antenna damaged at the end

#### 1.3.4 Elevator

The left Elevator Tip Cover (Fiberglass) was damaged on its lower trailing section.



Figure 9 : Damage to the tip cover of the left Elevator (Fiberglass)

#### 1.3.5 Other Damage

Slash marks from the left propeller were found for 100 meters on the surface of runway. The indentations were 5 mm in depth.

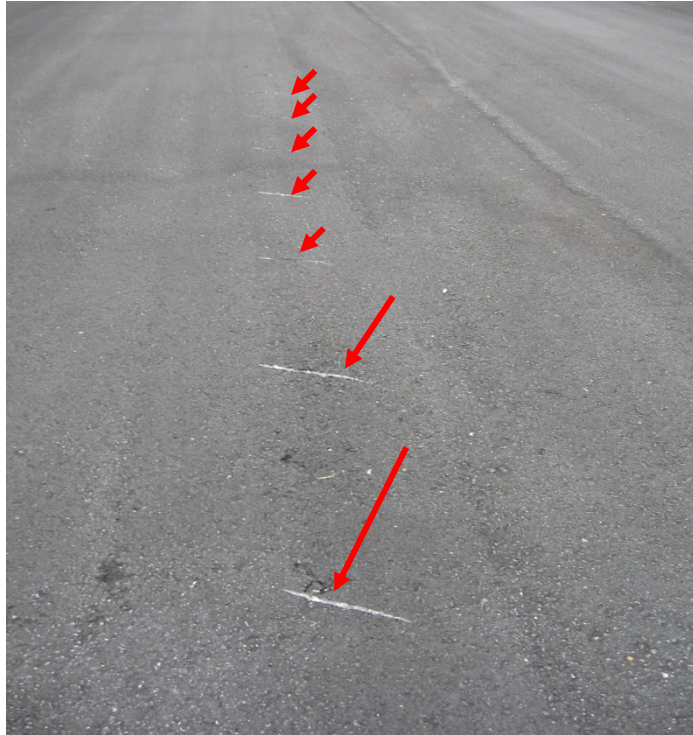


Figure 10 : Propeller blade marks which struck the runway



Figure 11 : Marks left by the aileron bracket hinges

## **1.4 Personnel Information**

### **1.4.1 Pilot-in-Command (PIC)**

|                              |   |
|------------------------------|---|
| Gender                       | : Male  |
| Date of Birth                | : 18 January 1961   |
| Nationality                  | : Indonesian  |
| Marital Status               | : Married   |
| Date of entry to company     | : February 2006   |
| License                      | : Commercial Pilot License  |
| Valid to                     | : 29 December 2007  |
| Endorsed on aircraft types   | : King Air 200, Cessna 402,<br>Piper PA31 Navajo, and PA<br>34 Seneca |
| Instrument rating valid to   | : 29 December 2007  |
| Medical certificate valid to | : 27 December 2007  |
| Date of last medical         | : July 2007   |
| Last line check/ prof. check | : July 2007   |
| Last proficiency check       | : July 2007   |
| <b>FLIGHT TIME</b>           |   |
| Total time                   | : 16,025  |
| This make & model            | : 650   |
| Last 90 Days                 | : 30  |
| Last 30 Days                 | : 20  |
| Last 24 Hours                | : 2   |

### **1.4.2 Engineer**

|                |                  |
|----------------|------------------|
| Gender         | : Male           |
| Date of Birth  | : 5 October 1935 |
| Nationality    | : Indonesia      |
| Marital Status | : Married        |
| License        | : A1 and A3      |
| Valid to       | : October 2008   |

## **1.5 Aircraft**

### **1.5.1 Aircraft Data**

|                              |  |
|------------------------------|--|
| Registration Mark            | : PK-JKS   |
| Manufacturer                 | : Piper Aircraft Cooperation   |
| Country of Manufacturer      | : USA  |
| Aircraft Owner               | : HIEBERT GROUP LIMITED<br>PO Box 46, Trident Chambers,<br>Road Town Tortola, British Virgin<br>Islands. |
| Type/ Model                  | : Seneca V PA-34-220T  |
| Serial Number                | : 34-49047   |
| Certificate of Airworthiness | : 2265   |
| Issued                       | : 15 November 2007   |
| Certificate of Registration  | : 2265   |
| Issued                       | : 15 October 2007  |
| Category                     | : Normal   |
| Crew (Cockpit/Cabin)         | : 1  |
| Pax seats                    | : 5  |
| Time Since New               | : 2,591 hours 46 minutes   |
| Cycles Since New             | : 3,378  |
| Last Major Inspection        | : 300 Hourly Insp. / 2,495 hours 49<br>minutes<br>3197 CSN ( Date 5-11-2006)                             |
| Last Minor Inspection        | : 50 Hourly Insp. / 2,542 hours 34<br>minutes (Date 20-03-2007)  |
| Hours Since Last Inspection  | : 49 hours 26 minutes  |

### **1.5.2 Weight and Balance**

Weight and balance were within allowable limits.

## **1.6 Meteorological Information**

Meteorological OBS : 7 December 2007 at 0130 UTC  
Aerodrome Ident. : WAML  
Wind direct and speed : 350 degrees / 4 knots  
Visibility : 10 kilometers  
Cloud : Few 018 (Few clouds 1,800 feet)  
Air Temperature & Dew point : T = 30 degrees Centigrade  
DP = 25 degrees Centigrade  
QNH 1012 : 29.87 inches  
QFE 1009 : 29.82 inches

## **1.7 Aids to Navigation**

Not relevant to this occurrence.

## **1.8 Communications**

Not relevant to this occurrence.

## **1.9 Flight Recorders**

The aircraft was not fitted with Flight Data or Cockpit Voice Recorders, nor were they required by regulations.

## **1.10 Survival Aspects**

The landing accident was witnessed by some of the staff and a manager of the airport. These airport personnel went to the accident site, taking portable fire extinguishers, to render assistance.

## **1.11 Testing and Research**

No tests and research relevant to this accident.

## 1.12 Organizational and Management Information

PT. Air Transport Service is a subsidiary of PT. Bukaka, which specifically provides air transport for its subsidiaries. Its aircraft include BO-105 and Piper Seneca PA-34. Initially this company was under the umbrella of National Air Charter, but after it was suspended by the Directorate General of Civil Aviation, PT. Air Transport Service sought to have its own Aircraft Maintenance Organization. At the time of the accident PT. Air Transport Service did not have its own Aircraft Maintenance Organization.

## 1.13 Other Information

### 1.13.1 Kasiguncu Airport

Kasiguncu (WAMP) is a class III airport. At the time of the accident it did not have an operational rescue fire fighting service.

The investigation noted that the airport's fire rescue vehicle was damaged during riots in 2004, and had remained unserviceable.<sup>2</sup>

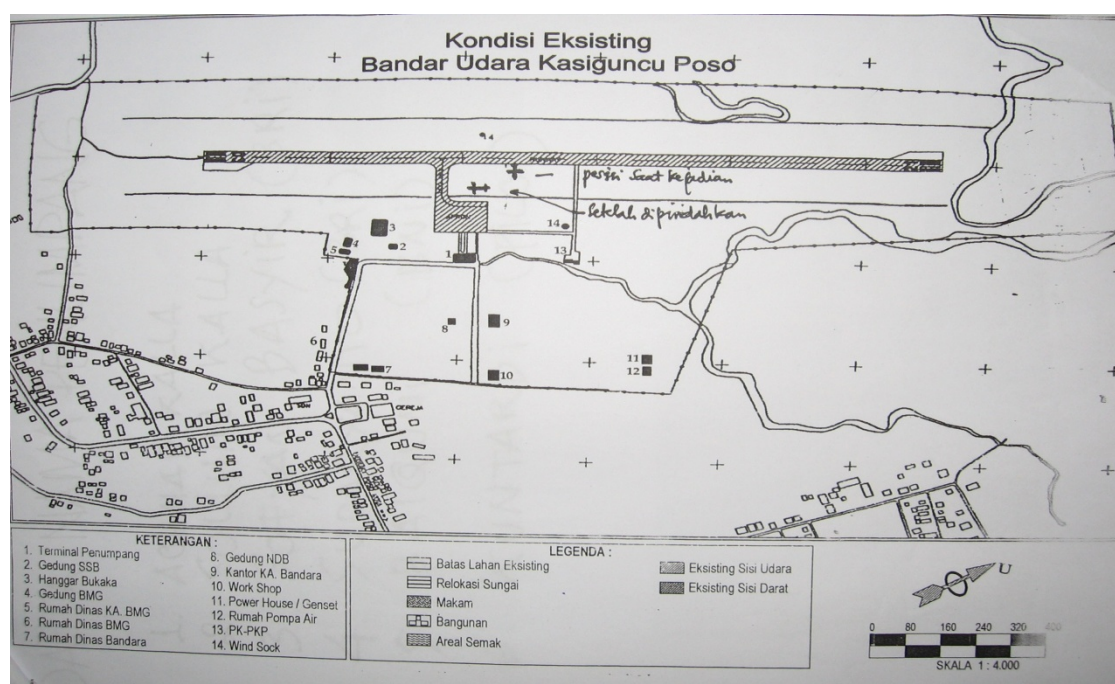


Figure 12 : Illustration 14 Kasiguncu aerodrome, Poso City

<sup>2</sup> The requirement for Airport emergency planning, equipment and exercising at Indonesian airports was extensively covered in the report published 22 October 2007 by the National Transportation Safety Committee into the Boeing 737 accident on 7 March 2007 at Yogyakarta. Recommendations were made in that report to the Directorate General of Civil Aviation and Indonesian airport operators. [www.dephub.go.id/knkt](http://www.dephub.go.id/knkt). With the issue of this report, the NTSC draws attention to these recommendations.

### 1.13.2 Left main landing gear examination

With the aircraft on jacks, the investigation conducted further examinations of the left landing gear retraction and extension.

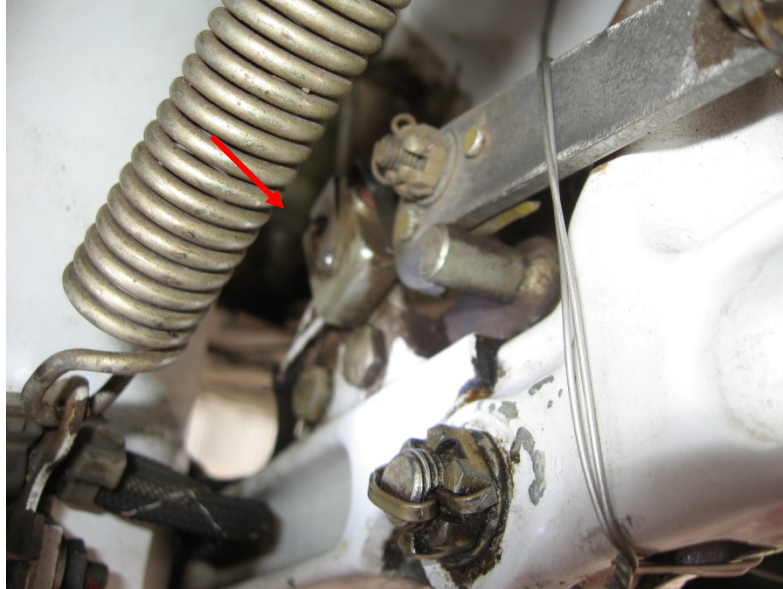


Figure 13 : The micro-switch for the main landing gear down lock was not damaged



Figure 14 : The position of locking devices was normal

## **2 ANALYSIS**

The aircraft reportedly landed smoothly on runway 21. The pilot reported that all landing gear system indications were normal for a locked down landing gear.

The investigation determined that there was no evidence of any defect with the landing gear micro switches, or hydraulic system. The left main landing gear had evidence of some movement in the area of the down lock. The landing gear was only 2,592 hours since new. The investigation was not able to conclusively determine that the noted movement could be linked to the landing gear unlocking and subsequently retracting. The manufacturer's time between overhaul for the landing gear is 10,000 hours.

### **3 CONCLUSIONS**

#### **3.1 Findings**

- a. The pilot was appropriately licensed to operate the Piper PA 34 aircraft.
- b. The pilot reported that there were no signs or alarms that the landing gear was unsafe before touchdown.
- c. There was no evidence of any defect with the landing gear micro switches, or hydraulic system.
- d. Play/movement was found in the left landing gear, but this could not be conclusively linked to the landing gear retraction.
- e. There was no operational airport fire rescue service at Kasiguncu Airport.

#### **3.2 Causes**

The investigation was not able to determine why the landing gear retracted during the landing roll.

## **4 RECOMMENDATIONS**

As result of investigation into the Piper PA 34 accident that occurred on 7 December 2007 at Kasiguncu Airport, Sulawesi, Indonesia, the National Transportation Safety Committee (NTSC) issues the following recommendations to address the safety deficiencies identified in this report.

### **4.1 Recommendation to Kasiguncu Airport operator**

The National Transportation Safety Committee recommends that the Kasiguncu Airport operator review the procedures and equipment for the airport Rescue and Fire Fighting Services to ensure that they:

- meet the minimum requirements specified in the International Civil Aviation Organization's Annex 14.

### **4.2 Recommendation to the Directorate General of Civil Aviation (DGCA)**

The National Transportation Safety Committee recommends that the Directorate General of Civil Aviation (DGCA) review the procedures and equipment used by the Kasiguncu Rescue and Fire Fighting Services to ensure that they:

- meet the minimum requirements specified in the International Civil Aviation Organization's Annex 14.