

**FINAL**

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**NATIONAL  
TRANSPORTATION  
SAFETY  
COMMITTEE**

*Aircraft Accident Investigation Report*

**PT. Garuda Indonesia  
PK – GWK  
Boeing Company 737-400  
Soekarno-Hatta Airport, Jakarta  
Republic of Indonesia**

**12 April 2007**



**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 3<sup>rd</sup> Floor, Jalan 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, Aviation Act (UU No.1/2009), and Government Regulation (PP No. 3/2001).

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## **GLOSSARY OF ABBREVIATIONS**

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AD	Airworthiness Directive
AFM	Airplane Flight Manual
AGL	Above Ground Level
ALAR	Approach-and-landing Accident Reduction
AMSL	Above Mean Sea Level
AOC	Air Operator Certificate
ATC	Air Traffic Control
ATPL	Air Transport Pilot License
ATS	Air Traffic Service
Avsec	Aviation Security
BMG	Badan Meterologi dan Geofisika
BOM	Basic Operation Manual
°C	Degrees Celsius
CAMP	Continuous Airworthiness Maintenance Program
CASO	Civil Aviation Safety Officer
CASR	Civil Aviation Safety Regulation
CPL	Commercial Pilot License
COM	Company Operation Manual
CRM	Cockpit Recourses Management
CSN	Cycles Since New
CVR	Cockpit Voice Recorder
DFDAU	Digital Flight Data Acquisition Unit
DGCA	Directorate General of Civil Aviation
DME	Distance Measuring Equipment
EEPROM	Electrically Erasable Programmable Read Only Memory
EFIS	Electronic Flight Instrument System
EGT	Exhaust Gas Temperature
EIS	Engine Indicating System
FL	Flight Level
F/O	First officer or Co-pilot
FDR	Flight Data Recorder
FOQA	Flight Operation Quality Assurance
GPWS	Ground Proximity Warning System
hPa	Hectopascals
ICAO	International Civil Aviation Organization

IFR	Instrument Flight Rules
IIC	Investigator in Charge
ILS	Instrument Landing System
Kg	Kilogram(s)
Km	Kilometer(s)
Kt	Knots (NM/hour)
Mm	Millimeter(s)
MTOW	Maximum Take-off Weight
NM	Nautical mile(s)
KNKT / NTSC	Komite Nasional Keselamatan Transportasi / National Transportation Safety Committee
PIC	Pilot in Command
QFE	Height above aerodrome elevation (or runway threshold elevation) based on local station pressure
QNH	Altitude above mean sea level based on local station pressure
RESA	Runway End Safety Area
RPM	Revolution Per Minute
SCT	Scattered
S/N	Serial Number
SSCVR	Solid State Cockpit Voice Recorder
SSFDR	Solid State Flight Data Recorder
TS/RA	Thunderstorm and rain
TAF	Terminal Aerodrome Forecast
TSN	Time Since New
TT/TD	Ambient Temperature/Dew Point
TTIS	Total Time in Service
UTC	Coordinated Universal Time
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions



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## **INTRODUCTION**

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### **SYNOPSIS**

On 12 April 2007, a Boeing 737-400 aircraft, registration PK-GWK, was being operated on a scheduled passenger service from Soekarno-Hatta International Airport, Jakarta to Hasanuddin Airport, Makassar as GA602.

After airborne flight crew felt that the aircraft vibrated. The flight crew observed that all engine parameters were indicating normal. After the landing gear was in up-position, the vibration disappeared. The flight crew continued the flight normally to the destination. During flight, the flight crew was notified by another company aircraft departed after GA602, that they observed tire debris left on the runway. There was no abnormality during cruise.

During approach briefing, the PIC also briefed the possibility of landing with one tire has burst. Although landing at maximum landing weight was permitted, the PIC requested a 30 minutes holding to the ATC in order to reduce landing weight.

During visual approach to runway 13, the flight crew requested to the Hasanuddin Tower for over-flying at an altitude of 400 feet, to verify the main landing gear tires condition. After the over-flying the tower informed the flight crew that there was a problem on the left main landing gear tire although the tower could not identify whether on the number one or number two tire.

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## **1. FACTUAL DATA**

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### **1.1 HISTORY OF THE FLIGHT**

On 12 April 2007, a Boeing 737-400 aircraft, registration PK-GWK, , was being operated on a scheduled passenger service from Soekarno-Hatta International Airport, Jakarta to Hasanuddin Airport, Makassar as GA602.

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The flight crew requested for assistance after landing. The aircraft landed safely and parked at the “A” taxiway where the passengers disembarked.

### **1.2 INJURIES TO PERSONS**

No injuries involved in this incident.

### **1.3 DAMAGE TO AIRCRAFT**

The number-two tire of the main landing gear was burst and the thread was detached (Figure 1). The burst was an “X” type.



Figure 1: The number-two tire burst.

The aft flap was damaged as shown in Figure 2.



Figure 2: The damage at the aft flap.



Figure 3: The damaged aft flap after repair

#### **1.4 OTHER DAMAGE**

No other damage was reported.

#### **1.5 PERSONNEL INFORMATION**

The pilots held valid licenses and ratings for the operation of the aircraft. This section covering flight crew is not relevant to this serious incident.

#### **1.6 AIRCRAFT INFORMATION**

Registration Mark	: PK-GWK
Manufacturer	: Boeing Company
Country of Manufacturer	: United States of America
Type/ Model	: Boeing 737-400

#### **1.7 METEOROLOGICAL INFORMATION**

Not relevant to this incident.

#### **1.8 AIDS TO NAVIGATION**

Not relevant to this incident.

## **1.9 COMMUNICATIONS**

Communication between Air Traffic Services and the crew was normal.

## **1.10 AERODROME INFORMATION**

The Soekarno Hatta International Airport (WIII) has two parallel runways: runway 07-25 Left and Right. Runway used by PK-GWK at the time was 25R.

The night at 11 April 2007, the concrete runway surface 25R was repaired used asphalt. Early in the morning, the runway was cleaned used a sweeper truck.

Several broken pieces of concrete were found on the shoulder of runway 25R after accident (Figure 4).



Figure 4: Broken pieces of concrete found on the runway.

## **1.11 FLIGHT RECORDERS**

Not relevant to this accident.

## **1.12 WRECKAGE AND IMPACT INFORMATION**

Several debris of the tire burst found on the runway 25R of the Soekarno-Hatta International Airport, Jakarta.



Figure 5: The tire debris.

### **1.13 MEDICAL AND PATHOLOGICAL INFORMATION**

Not relevant to this incident

### **1.14 FIRE**

There was no pre- or post- accident fire.

### **1.15 SURVIVAL ASPECTS**

None of the occupants were injured, and they disembarked the aircraft unaided via aircraft air stairs.

### **1.16 TESTS AND RESEARCH**

Not relevant to this incident.

### **1.17 ORGANIZATIONAL AND MANAGEMENT INFORMATION**

The Soekarno-Hatta Airport, Jakarta was operated by PT. Angkasa Pura II (Persero) and the airport authority was the Ministry of Transportation.

Operator: PT. Angkasa Pura II  
Soekarno-Hatta International Airport  
Jakarta 19130

## **1.18 ADDITIONAL INFORMATION**

Not relevant to this incident.

## **1.19 USEFUL OR EFFECTIVE INVESTIGATION TECHNIQUES**

The investigation was conducted in accordance with 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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### **2.1 TIRE BURST OF NUMBER-TWO WHEEL**

The investigation determined that the burst of the number-two tire as follows:

- The tire shows “X” type damage. This type of damage indicated that a pointed object was rolled over by the tire and burst forming a “X” type damage to the thread.
- The pointed object could be one of broken pieces of concrete found on the runway.
- The burst resulted the thread peel off.
- The debris (tire pieces and / or concrete) hit and damaged the aft left flap tearing through the flap thickness.

### **2.2 ORIGIN OF PIECES OF CONCRETE**

At the time of the accident there was a repair on the runway. Moreover, broken pieces of concrete were found.



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## **3. CONCLUSIONS**

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### **3.1 FINDINGS**

- The aircraft was certified as being airworthy at the time of accident.
- Both pilots held valid licenses and ratings for the operation of the aircraft.
- The “X” form of damage indicated that a pointed object was rolled over the tire causing the burst of the tire.
- The pointed object could be one of the broken pieces of concrete.
- The burst peeled off the thread.
- The broken pieces of concrete and/ or the tire hit and damaged the left aft flap tearing through the flap thickness.
- At the time of the accident, there was a repair on the runway.

### **3.2 CAUSES**

- The “X” form of damage indicated that a pointed object was rolled over by the tire causing tire burst. The pointed object could be one of the broken pieces of concrete.
- The tire burst peeled off the thread. The broken pieces of concrete and/ or the tire hit and damaged the left aft flap tearing through the flap thickness.

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## **4. SAFETY RECOMMENDATION**

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As a result of this serious incident investigation, the National Transportation Safety Committee made the following recommendation.

### **4.1 RECOMMENDATION TO THE AIRPORT MANAGEMENT**

The National Transportation Safety Committee recommends that the airport operator should:

- maintain and ensured the cleanliness of the runway in accordance with applicable rules and regulations.
- repair of the runway should be done in accordance with the approved methods.

### **4.2 RECOMMENDATION TO THE DGCA**

The National Transportation Safety Committee recommends that the Directorate General Civil Aviation should:

- Ensure the cleanliness of the runway in accordance with applicable rules and regulations.
- Ensure the repair of the runway should be done in accordance with the approve method.