

**PRELIMINARY**  
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**NATIONAL  
TRANSPORTATION  
SAFETY  
COMMITTEE**

**Aircraft Serious Incident Investigation Report**

**PT. Merpati Nusantara Airlines**

**De Havilland DHC 6-300 Twin Otter; PK-NUH**

**Draba Airtrip, Papua  
Republic of Indonesia**

**17 October 2011**



**NATIONAL TRANSPORTATION SAFETY COMMITTEE  
MINISTRY OF TRANSPORTATION  
REPUBLIC OF INDONESIA  
2011**

This Preliminary Factual Report was produced by the National Transportation Safety Committee (NTSC), Transportation Building 3<sup>rd</sup> Floor, Jalan Medan Merdeka Timur No. 5, Jakarta 10110, INDONESIA.

The report is based upon the initial 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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AFIS	:	Aerodrome Flight Information Service
AOC	:	Air Operator Certificate
ATPL	:	Air Transport Pilot License
CPL	:	Commercial Pilot License
CSN	:	Cycles Since New
CVR	:	Cockpit Voice Recorder
DGCA	:	Directorate General of Civil Aviation
FO	:	First officer or Copilot
FWD	:	Forward
ICAO	:	International Civil Aviation Organization
MHz	:	Mega Hertz
MTOW	:	Maximum Take-off Weight
KNKT / NTSC	:	<i>Komite Nasional Keselamatan Transportasi /</i> National Transportation Safety Committee
PF	:	Pilot Flying
P/N	:	Part Number
SBB	:	Single Sideband Radio
S/N	:	Serial Number
TBO	:	Time Between Overhaul
TSN	:	Time Since New
TSO	:	Time Since Overhaul
USA	:	United State of America
UTC	:	Universal Time Coordinate
VFR	:	Visual Flight Rules
VOR	:	VHF Omnidirectional Radio Range
WIT	:	<i>Waktu Indonesia Timur /</i> East Indonesia Standard Time

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# INTRODUCTION

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## SYNOPSIS

On 17 October 2011, a De Havilland DHC-6 Twin Otter aircraft registered PK-NUH operated by PT. Merpati Nusantara flight number MZ9782D. It was a scheduled flight from Sentani Airport (DJJ / WAJJ) Jayapura, to Dabra Airstrip (DRH / WAJC) Dabra Papua.

The flight departed from Sentani at 06.20 UTC (15.20 WIT)<sup>1</sup> to Dabra as the destination. The total of persons on board were 2 pilots, 1 company aircraft maintenance engineer and 13 passengers. This flight was the second flight for the same route and same crew.

At about 07.10 UTC, the aircraft was approaching Dabra and flight crew was able to see the runway.

The aircraft touchdown at runway 24 and experienced bouncing about 175 metres than the aircraft veered to right side of runway 24. The aircraft was out in the right of runway about 120 metres and the aircraft right wing hit banana tress 6.5 metres in the right of runway. The flight crew of PK-NUH tried to correct the aircraft direction into the runway centerline.

After the aircraft entering the runway, the flight crew recovered by ground loop about 18,4 metres before the end of runway 24. The aircraft stopped 35.8 metres before the end of runway 24 and heading 35°.

All 16 occupants were no injured. The aircraft was damaged.

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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. Waktu Indonesia Timur (WIT) is UTC +9 hours.

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# 1 ACTUAL INFORMATION

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## 1.1 HISTORY OF THE FLIGHT

On 17 October 2011, a De Havilland DHC-6 Twin Otter aircraft registered PK-NUH operated by PT. Merpati Nusantara flight number MZ9782D. It was a scheduled flight from Sentani Airport (DJJ / WAJJ) Jayapura, to Dabra Airstrip (DRH / WAJC) Dabra Papua.

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All 16 occupants were no injured. The aircraft was damaged.

The flight crew of PK-NUH stay overnight in Dabra.



**Figure 1. De Havilland DHC-6 “Twin Otter” aircraft registration PK-NUH**

## **1.2 INJURIES TO PERSONS**

<b>Injuries</b>	<b>Flight crew</b>	<b>Passengers</b>	<b>Total in Aircraft</b>	<b>Others</b>
Fatal	-	-	-	-
Serious	-	-	-	-
Minor	-	-	-	Not applicable
Nil Injuries	2	14	16	Not applicable
<b>TOTAL</b>	<b>2</b>	<b>14</b>	<b>16</b>	<b>-</b>

## **1.3 DAMAGE TO AIRCRAFT**

The aircraft was damaged as follows:

- Lower forward fuselage Station 60 twisted,
- Right wing leading edge damage,
- Right main landing burst,
- Left compressor block upper and lower broken,
- Left main gear shifted rearward.



**Figure 2. PK-NUH Station 60 (Lower Fuselage) Section**



**Figure 3. PK-NUH Right Main Gear**

#### **1.4 OTHER DAMAGE**

There was some banana trees damage mostly due to hit by aircraft's right wing.

## 1.5 PERSONNEL INFORMATION

### 1.5.1 Captain Pilot

Gender : Male  
Date of birth : 08 March 1973  
Nationality : Indonesia  
Date of joining company : 2 January 1993  
License : ATPL  
    Aircraft type rating : Fokker 28, DHC-6  
    Valid to : 31 March 2012  
Instrument Rating : Valid until 30 September 2012  
Medical certificate : First Class, with limitation holder shall wear corrective lenses.  
    Last medical examination : 05 October 2011  
    Valid to : 05 April 2012  
Last line check : 13 July 2011  
Last proficiency check : 16 September 2011  
Total hours : 8.917 hours 30 minutes  
Total on type : *not provided by operator*  
Last 90 days : 111 hours 26 minutes  
Last 30 days : 20 hours 20 minutes  
This flight : 50 minutes (approximately)

### 1.5.2 First Officer

Gender : Male  
Date of birth : 20 September 1974  
Nationality : Indonesia  
Date of joining company : 13 March 2007  
License : CPL  
    Aircraft type rating : DHC-6  
    Valid to : 31 November 2011  
Instrument Rating : Valid until 30 November 2011  
Medical certificate : First Class

Last medical examination	:	11 May 2011
Valid to	:	11 November 2012
Last line check	:	05 May 2011
Last proficiency check	:	23 September 2011
Total hours	:	2.272 hours 06 minutes
Total on type	:	2.272 hours 06 minutes
Last 90 days	:	154 hours 20 minutes
Last 30 days	:	30 hours 12 minutes
This flight	:	50 minutes (approximately)

## 1.6 AIRCRAFT INFORMATION

### 1.6.1 General

Aircraft manufacturer	:	De Havilland, USA
Aircraft model/type	:	DHC 6-300 Twin Otter
Serial number	:	383
Year of manufacture	:	1971
Aircraft registration	:	<b>PK-NUH</b>
Certificate of Registration	:	577
Valid to	:	03 December 2012
Certificate of Airworthiness	:	577
Valid to	:	31 December 2011
Time Since New	:	37,239 Hours (as per 15 October 2011)
Cycles Since New	:	45,364 Cycles (as per 15 October 2011)
MTOW	:	5,400 kgs
Actual Take Off Weight	:	5,399 kgs
Estimated Landing Weight	:	5,099 kgs
Last Minor Inspection	:	C-24 inspection at 37.156 flight hours

### 1.6.2 Engines

Engine type	:	Turboprop
Manufacturer	:	Pratt & Whitney Canada
Model	:	PT6A-27
Serial Number Engine #1	:	PCE 41306
Time Since New	:	23,817 Hours (as per 15 October 2011)

Cycles Since New	:	30,657 Cycles (as per 15 October 2011)
Time Since Overhaul	:	2,816 Hours (as per 15 October 2011)
Time Between Overhaul	:	5,000 Hours
Serial Number Engine #2	:	PCE 40577
Time Since New	:	30,731 Hours (as per 15 October 2011)
Cycles Since New	:	37,497 Cycles (as per 15 October 2011)
Time Since Overhaul	:	3,478 Hours (as per 15 October 2011)
Time Between Overhaul	:	5,000 Hours

### 1.6.3 Propellers

Propeller type	:	variable pitch
Manufacturer	:	Hartzell
Model	:	HC-B3TN-3DY
Serial Number Engine #1	:	BUA 23839
Time Since New	:	10,499 Hours (as per 15 October 2011)
Time Since Overhaul	:	1,593 Hours (as per 15 October 2011)
Time Between Overhaul	:	3,000 Hours
Serial Number Engine #2	:	BUA 23395
Time Since New	:	9,932 Hours (as per 15 October 2011)
Time Since Overhaul	:	990 Hours (as per 15 October 2011)
Time Between Overhaul	:	3,000 Hours

## 1.7 METEOROLOGICAL INFORMATION

Dabra Airstrip does not provide any weather information. Day light condition prevailed at the time of the accident.

## 1.8 AIDS TO NAVIGATION

There were no navigation aids for the approach and landing at Dabra. Approach and landing must be conducted under the VFR.

## 1.9 COMMUNICATIONS

No communication between Dabra Airstrip to aircrafts, to maintain the operation safety they communicate among the aircrafts used 122.2 VHF, prior entry or out Dabra.

## 1.10 AERODROME INFORMATION

Airport Name	:	Dabra Airstrip
Airport Code	:	DBR / WAJC
Airport Address	:	Dabra District, Papua
Airport Authority	:	Directorate General of Civil Aviation
Airport Service	:	AFIS
Type of Traffic Permitted	:	VFR
Coordinates	:	03° 16' 19" S, 138° 36' 49" E
Elevation	:	210 feet
Runway Length	:	600 meters
Runway Width	:	18 meters
Azimuth	:	06 - 24
Runway Surface	:	Asphalt

## 1.11 FLIGHT RECORDERS

The aircraft was equipped with a Cockpit Voice Recorder (CVR).

### Cockpit Voice Recorder (CVR)

Manufacturer	:	Sundstrand, USA
Type	:	Model AV557C
P / N	:	980 – 6005 - 076
S / N	:	12641



**Figure 4. PK-NUH Cockpit Voice Recorder**

The CVR was recovered from the accident site the day after occurrence. The analysis of the CVR will be mention in the final report.

## **1.12 WRECKAGE AND IMPACT INFORMATION**

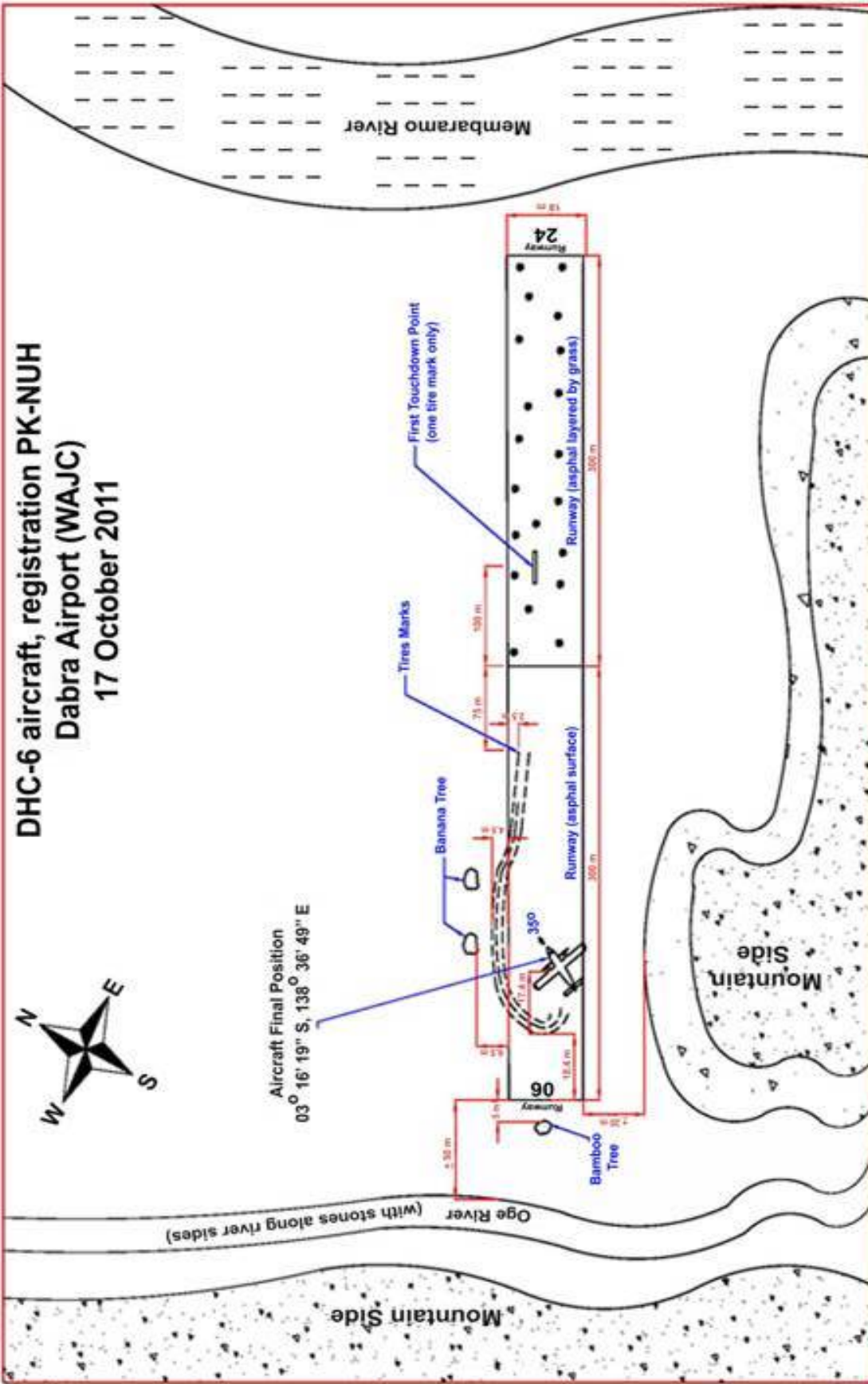
The first tire marks indicated aircraft touchdown was found on runway surface about 200 metres from the beginning of Runway 24.

The second tire found about 375 metres from the beginning of Runway 24. The tire marks shown the aircraft was veered to the right side of runway. There was an impact indication on the banana trees mostly due to impact the right wing.

About 18,4 metres from the end of runway 24, there was an scoured mark on asphalt of the runway surface that indicate the aircraft conducted a quick and deep turning (ground loop) on right main wheel. This action caused the right main wheel busted, the left main gear shifted rearward and lower forward fuselage station 60 twisted.



**Figure 5. PK-NUH Final Position after the Occurrence**



**Figure 7. The Sketch of PK-NUH Final Position**

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

Not relevance to this serious incident.

### **1.14 FIRE**

There was no evidence of fire in flight or after the aircraft impact.

### **1.15 SURVIVAL ASPECTS**

It was a survivable occurrence.

### **1.16 TESTS AND RESEARCH**

Test and research will be considered as additional factual data indicate the requirement.

### **1.17 ORGANISATIONAL AND MANAGEMENT INFORMATION**

Aircraft Owner : PT. Merpati Nusantara Airlines  
Address : Jl. Angkasa Blok B-15 Kav 2-3  
Kemayoran, Jakarta Pusat 10720  
AOC Number : AOC 121/002

### **1.18 ADDITIONAL INFORMATION**

#### **1.18.1 Dabra Airstrip**

In the morning of occurrence, the Merpati's Sentani flight operation got information from local agent on Dabra District that informed weather clear and wind 5-7 knots in the morning.

There is a normal practice that local agent in Dabra informed operator using a HF radio about the weather and other issues related to Dabra Airstrip.

At the day of occurrence and during the NTSC conducted on-site investigation, there no one of Dabra Airstrip authority personnel on location.

## **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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To be included in the final report.

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### **3 CONCLUSION**

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To be included in the final report.

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## 4 SAFETY ACTIONS

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At the time of issuing this Preliminary Report, the National Transportation Safety Committee had been informed of safety actions resulting from this accident as follows:

### 4.1. PT. Merpati Nusantara Airlines

- a. Aviation Safety, Security and Quality Division of PT. Merpati Nusnatara Airlines has issued an Aviation Safety Notice (“Red” letter status) No. DS/X/2011/N-032 on 21 October 2011 about “*Quality of Operations Personnel Training*”.
- b. Aviation Safety, Security and Quality Division of PT. Merpati Nusnatara Airlines has issued an Aviation Safety Notice (“Red” letter status) No. DS/X/2011/N-033 on 21 October 2011 about “*PIC as the Pilot Flying*”

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## **5 RECOMMENDATION**

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At the time of issuing this Preliminary Report, the National Transportation Safety Committee did not issued any recommendations