



**KOMITE NASIONAL KESELAMATAN TRANSPORTASI
REPUBLIC OF INDONESIA**

PRELIMINARY

KNKT.16.12.43.04

Aircraft Accident Investigation Report

PT. Wings Abadi Airlines

ATR 72-212A; PK-WGW

Ahmad Yani International Airport, Semarang

Republic of Indonesia

25 December 2016



2016

This preliminary investigation report was produced by the Komite Nasional Keselamatan Transportasi (KNKT), Transportation Building, 3rd Floor, Jalan Medan Merdeka Timur No. 5 Jakarta 10110, Indonesia.

The report is based upon the initial investigation carried out by the KNKT 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. 62/2013).

The preliminary report consists of factual information collected until the preliminary report published. This report will not include analysis and conclusion.

Readers are advised that the KNKT investigates for the sole purpose of enhancing aviation safety. Consequently, the KNKT reports are confined to matters of safety significance and may be misleading if used for any other purpose.

As the KNKT believes that safety information is of greatest value if it is passed on for the use of others, readers are encouraged to copy or reprint for further distribution, acknowledging the KNKT as the source.

When the KNKT makes recommendations as a result of its investigations or research, safety is its primary consideration.

However, the KNKT fully recognizes that the implementation of recommendations arising from its investigations will in some cases incur a cost to the industry.

Readers should note that the information in KNKT reports and recommendations is provided to promote aviation safety. In no case is it intended to imply blame or liability.

TABLE OF CONTENTS

TABLE OF CONTENTS	i
TABLE OF FIGURES	iii
ABBREVIATIONS AND DEFINITIONS	iv
INTRODUCTION	vi
1 FACTUAL INFORMATION	1
1.1 History of the Flight.....	1
1.2 Injuries to Persons.....	2
1.3 Damage to Aircraft	2
1.4 Other Damage	3
1.5 Personnel Information	4
1.5.1 Pilot in Command.....	4
1.5.2 Second in Command	4
1.6 Aircraft Information.....	5
1.6.1 General	5
1.6.2 Engines	6
1.6.3 Propellers.....	6
1.6.4 Main Landing gear	6
1.7 Meteorological Information.....	7
1.7.1 Automatic Terminal Information Service (ATIS).....	7
1.7.2 Automated Weather Observing System (AWOS).....	7
1.7.3 Satellite Image	8
1.8 Aids to Navigation.....	10
1.9 Communications	11
1.10 Aerodrome Information	12
1.11 Flight Recorders.....	12
1.11.1 Flight Data Recorder	12
1.11.2 Cockpit Voice Recorder	13
1.12 Wreckage and Impact Information	13
1.13 Medical and Pathological Information	15
1.14 Fire.....	15
1.15 Survival Aspects	16
1.16 Tests and Research	16

1.17	Organizational and Management Information.....	16
1.17.1	The Aircraft Operator.....	16
1.17.1.1	Operations Manual Part A.....	16
1.17.1.2	Flight Crew Operating Manual Vol 1 & 2.....	19
1.17.1.3	Standard Operation Procedures for ATR 72-600.....	19
1.18	Additional Information.....	20
1.19	Useful or Effective Investigation Techniques.....	20
2	FINDINGS.....	21
3	SAFETY ACTION.....	22
4	SAFETY RECOMMENDATIONS.....	24

TABLE OF FIGURES

Figure 1: The aircraft condition after stopped	2
Figure 2: The damaged main landing gear and propeller	3
Figure 3: Several dent and damage on the right fuselage.....	3
Figure 4: Satellite image at 1000 UTC (Copyright of BMKG).....	9
Figure 5: Satellite image at 1100 UTC (Copyright of BMKG).....	9
Figure 6: Satellite image at 1100 UTC (Copyright of BMKG).....	10
Figure 7: The GNNS approach chart published in AIP Volume II	11
Figure 8: The significant FDR parameters	13
Figure 9: The first scratch.....	14
Figure 10: The white marking crossed from left to right runway centreline.....	14
Figure 11: The white marking crossed from right to left runway centreline.....	15
Figure 12: The propeller scratch mark on the ground	15

ABBREVIATIONS AND DEFINITIONS

AIP	:	Aeronautical Information Publication
AOC	:	Aircraft Operator Certificate
ATC	:	Air Traffic Control
ATIS	:	Automatic Terminal Information Service
ATPL	:	Airline Transport Pilot License
AWOS	:	Automated Weather Observing System
BMKG	:	<i>Badan Meteorologi Klimatologi dan Geofisika</i> (Bureau of Meteorology, Climatology and Geophysics)
C of A	:	Certificate of Airworthiness
C of R	:	Certificate of Registration
CB	:	Cumulonimbus
CPL	:	Commercial Pilot License
CVR	:	Cockpit Voice Recorder
FCOM	:	Flight Crew Operating Manual
FDR	:	Flight Data Recorder
GA	:	Go Around
GNSS	:	Global Navigation Satellite System
ITB	:	<i>Institut Teknologi Bandung</i> (Bandung Institute of Technology)
KNKT	:	<i>Komite Nasional Keselamatan Transportasi</i> (National Transportation Safety Committee)
mbs	:	Millibars
OM	:	Operations Manual
PA	:	Public Address
PAS	:	Public Address System
PBN	:	Performance Based Navigation
PF	:	Pilot Flying
PIC	:	Pilot in Command
PM	:	Pilot Monitoring
QRH	:	Quick Reference Handbook
RFSS	:	Rescue and Fire Fighting Service
RNAV	:	Area Navigation approach is an approach procedure utilized both ground-based and satellite-based systems.
RVR	:	Runway Visual Range
SEP	:	Safety Equipment and Procedures Manual
SIC	:	Second in Command
SOP	:	Standard Operation Procedure

UTC : Universal Time Coordinated
VHF : Very High Frequency
VW : Variable Wind
WD : Wind Direction
WS : Wind Speed

INTRODUCTION

SYNOPSIS

On 25 December 2016, an ATR 72-600 aircraft registered PK-WGW was being operated by PT. Wings Abadi Airlines (Wings Air) as a scheduled passenger flight from Husein Sastranegara International Airport (WICC), Bandung to Ahmad Yani International Airport (WAHS), Semarang with flight number WON 1896. On board the aircraft were two pilots, two flight attendants and 68 passengers. There was no report or record of aircraft system malfunction prior to the accident.

At 1734 LT (1034 UTC), the aircraft departed Bandung and the Pilot in Command (PIC) acted as Pilot Flying (PF) and the Second in Command (SIC) acted as Pilot Monitoring (PM). The flight from departure until commencing for landing approach was uneventful.

The approach conducted according to the RNAV approach procedure runway 13. At 1120 UTC, the flight was on final and the runway was in sight and the tower controller advised that the surface wind direction was 190° with velocity of 15 knots, altimeter setting 1,008 mbs and the runway was wet.

At 1121 UTC, the tower controller had visual contact to the aircraft and issued landing clearance, the pilot acknowledged the clearance and requested to reduce the approach light intensity. The tower controller reduced the light intensity and confirmed whether the intensity was appropriate then the pilot affirmed.

At 1124 UTC, the aircraft touched down and bounced twice. After the second bounce, the pilot attempted to go around and the aircraft touched the runway. During the landing roll, the tower controller noticed abnormal attitude of the aircraft. The aircraft was tilted to the right by the indication of navigation lights position. The aircraft then deviated to the right from the runway centreline. The tower controller activated the crash bell then informed the Rescue and Fire Fighting Service (RFFS) that there was an aircraft accident near the taxiway D. While waiting the assistance, the pilot kept the engines run to provide the lighting system ON in the cabin.

At 1129 UTC, the tower controller advised the pilot to shut down the engines since the RFFS personnel had arrived near the aircraft to assist the evacuation. Passenger evacuation completed at approximately 10 minutes after the aircraft stopped. No one injured in this accident. The aircraft was substantially damaged. The right main landing gear folded inward and the propellers tip of the engine number 2 broken at about 26 cm from the tip.

The investigation is continuing and will include details of the following information; description of the flight recorders, related procedures of the operators, human factors issue, flight technique and aircraft system.

Following this accident PT. Wings Abadi Airlines issued safety actions which considered relevant to improve safety. In addition, Komite Nasional Keselamatan Transportasi (KNKT) issues safety recommendations to Wings Air related to bouncing recovery training and emergency evacuation training.

1 FACTUAL INFORMATION

1.1 History of the Flight

On 25 December 2016, an ATR 72-600 aircraft registered PK-WGW was being operated by PT. Wings Abadi Airlines (Wings Air) as a scheduled passenger flight from Husein Sastranegara International Airport (WICC), Bandung¹ to Ahmad Yani International Airport (WAHS), Semarang² with flight number WON 1896. On board the aircraft were two pilots, two flight attendants and 68 passengers. There was no report or record of aircraft system malfunction prior to the accident.

The aircraft departed Bandung at 1734 LT (1034 UTC³). The Pilot in Command (PIC) acted as Pilot Flying (PF) and the Second in Command (SIC) acted as Pilot Monitoring (PM). The flight from departure until commencing for landing approach was uneventful.

At 1112 UTC, the air traffic controller of Semarang Approach unit (approach controller) informed to all traffic that the rain was falling over the airport and the pilot confirmed whether the rain was heavy and was replied that it was slight rain.

At 1115 UTC, the flight held over waypoint KENDA⁴ for separation with another aircraft and maintained altitude of 4,000 feet. Two minutes later, the flight was approved to descend to altitude of 3,000 feet.

At 1118 UTC, the approach controller issued RNAV⁵ approach clearance to runway 13 and instructed the pilot to report when leaving KENDA. One minute later, the pilot reported leaving KENDA and the approach controller instructed to continue approach and to contact the air traffic controller of Semarang Tower unit (tower controller).

At 1120 UTC, the pilot advised the tower controller that the aircraft was on final and the runway was in sight. The tower controller instructed to continue the landing approach and advised that the surface wind direction was 190° with velocity of 15 knots, altimeter setting 1,008 mbs and the runway was wet.

At 1121 UTC, the tower controller had visual contact to the aircraft and issued landing clearance, the pilot read back the clearance and requested to reduce the approach light intensity. The tower controller reduced the light intensity and confirmed whether the intensity was appropriate then the pilot affirmed.

At 1124 UTC, the aircraft touched down and bounced twice. After the second bounce, the pilot attempted to go around and the aircraft touched the runway. The tower controller noticed that the red light on the right wing was lower than the green light on the left wing. The aircraft moved to the right from the runway centerline and stopped near taxiway D. The tower controller realized that the aircraft was not in normal condition and activated the crass bell then informed the Rescue and Fire

1 The 24-hours clock in Universal Time Coordinated (UTC) is used in this report to describe the local time as specific events occurred. Local time is UTC+7 hours.

2 Husein Sastranegara International Airport (WICC), Bandung will be named as Bandung for the purpose of this report.

3 Ahmad Yani International Aiport (WAHS), Semarang will be named as Semarang for the purpose of this report.

4 KENDA is a waypoint located 13 Nm from Semarang on bearing 309°.

5 RNAV (Area Navigation) approach is an approach procedure utilized both ground-based and satellite-based systems.

Fighting Service (RFFS) that there was aircraft accident near the taxiway D.

At 1126 UTC, the pilot advised the tower controller that the aircraft stopped on the runway and requested assistance. The tower controller acknowledged the message and advised the pilot to wait for the assistance. While waiting the assistance, the pilot kept the engines run to provide the lighting system ON in the cabin.

At 1129 UTC, the tower controller advised the pilot to shut down the engines since the RFFS personnel had arrived near the aircraft to assist the evacuation.

Passenger evacuation completed at approximately 10 minutes after the aircraft stopped.



Figure 1: The aircraft condition after stopped

1.2 Injuries to Persons

Injuries	Flight Crew	Passengers	Total in Aircraft	Others
Fatal	-	-	-	-
Serious	-	-	-	-
Minor/None	4	68	72	-
TOTAL	4	68	72	-

1.3 Damage to Aircraft

The aircraft was substantially damaged. The right main landing gear folded inward and the propellers tip of the engine number 2 broken at about 26 cm from the tip.



Figure 2: The damaged main landing gear and propeller

On the right fuselage of the aircraft, there were several dents and damages.

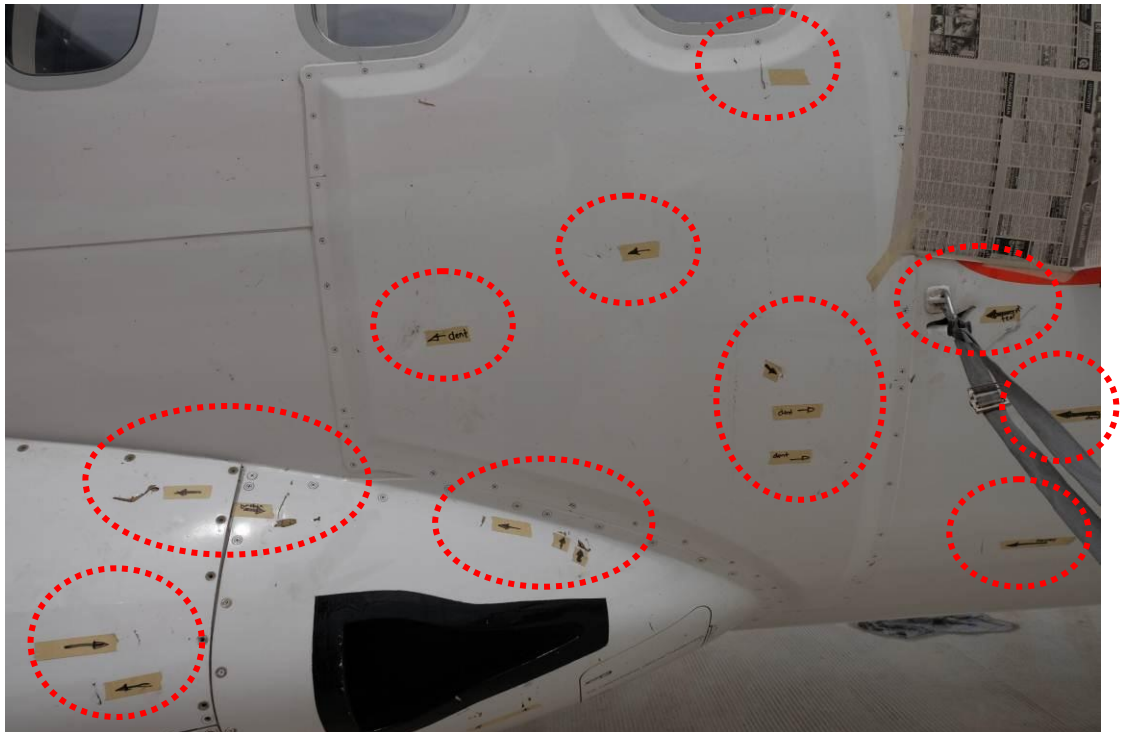


Figure 3: Several dent and damage on the right fuselage

1.4 Other Damage

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

1.5 Personnel Information

1.5.1 Pilot in Command

Gender : Male
Age : 28 years
Nationality : British
Marital status : Single
Date of joining company : 1 March 2012
License : ATPL
 Date of issue : 26 July 2014
 Aircraft type rating : ATR 42/72
Instrument rating validity : 4 June 2017
Medical certificate : First Class
 Last of medical : 30 August 2016
 Validity : 30 August 2017
 Medical limitation : Holder shall wear corrective lenses
Last line check : 28 July 2016
Last proficiency check : 4 December 2016

Flying experience

Total hours : 4,065 hours
Total on type : 3,805 hours
Last 90 days : 206 hours
Last 60 days : 151 hours
Last 24 hours : 7 hours 25 minutes
This flight : 54 minutes

1.5.2 Second in Command

Gender : Male
Age : 24 years
Nationality : Indonesian
Marital status : Married
Date of joining company : 12 October 2012
License : CPL
 Date of issue : 27 November 2012
 Aircraft type rating : ATR 72
Instrument rating validity : 30 April 2017

Medical certificate	: First Class
Last of medical	: 13 December 2016
Validity	: 30 June 2017
Medical limitation	: Holder shall wear corrective lenses
Last line check	: 6 October 2016
Last proficiency check	: 28 April 2016
Flying experience	
Total hours	: 3,300 hours
Total on type	: 3,200 hours
Last 90 days	: 189 hours
Last 60 days	: 105 hours
Last 24 hours	: 2 hours 40 minutes
This flight	: 54 minutes

1.6 Aircraft Information

1.6.1 General

Registration Mark	: PK-WGW
Manufacturer	: Avions de Transport Regional (ATR)
Country of Manufacturer	: France
Type/Model	: 72-212A
Serial Number	: 1234
Year of Manufacture	: 2015
Certificate of Airworthiness	
Issued	: 4 March 2016
Validity	: 3 March 2017
Category	: Transport
Limitations	: None
Certificate of Registration	
Number	: 3620
Issued	: 4 March 2016
Validity	: 3 March 2017
Time Since New	: 3,485 hours 11 minutes
Cycles Since New	: 4,104 Cycles
Last Major Check	: Manufacturing on 24 February 2015, next C 01 Check was scheduled on 31 Oct 2017

Last Minor Check : A 07 Check was performed on 24 November 2016.

1.6.2 Engines

Manufacturer : Pratt & Whitney Canada

Part Number : PW127M

Engine Number 1

- Serial Number : PCE-ED0988
- Time Since New : 3,485 hours 11 minutes
- Cycles Since New : 4,104 cycles

Engine Number 2

- Serial Number : PCE-ED0987
- Time Since New : 3,485 hours 11 minutes
- Cycles Since New : 4,104 cycles

1.6.3 Propellers

Manufacturer : Hamilton Sundstrand

Part Number : 815500-3

Propeller Number 1

- Serial Number : FR20141024
- Time Since New : 3,485 hours 11 minutes
- Cycles Since New : 4,104 cycles

Propeller Number 2

- Serial Number : FR20141029
- Time Since New : 3,485 hours 11 minutes
- Cycles Since New : 4,104 cycles

1.6.4 Main Landing gear

Manufacturer : Messier Dowty

Main Landing Gear Number 1

- Part number : D23189000-24/C
- Serial number : MN 815
- Date installed : 21 October 2014
- Cycles Since New : 4,104 cycles
- Overhaul limit calendar : 3,285 days
- Overhaul limit cycles : 20,000 cycles

Main Landing Gear Number 2

- Part number : D23190000-24/C
- Serial number : MN 815
- Date installed : 21 October 2014
- Cycles Since New : 4,104 cycles
- Overhaul limit calendar : 3,285 days
- Overhaul limit cycles : 20,000 cycles

1.7 Meteorological Information

1.7.1 Automatic Terminal Information Service (ATIS)

The Ahmad Yani Meteorology Station issued meteorological report at 30 minute intervals or any significant changes through the Automatic Terminal Information Service (ATIS) on frequency 126.0 MHz.

The meteorological reports issued on 25 December 2016 were as follows:

	1030 UTC	1100 UTC	1130 UTC	1200 UTC
Wind (°/knots)	090 / 08	120 / 06	170 / 07	060 / 02
Visibility (km)	6	6	5	3
Weather	NIL	NIL	Slight Rain	Slight Rain
Cloud ⁶	FEW CB 015 SCT 016	FEW CB 015 SCT 016	FEW CB 015 SCT 016	FEW CB 015 SCT 016
TT/TD (°C)	27 / 23	27 / 23	25 / 24	24 / 23
QNH (mb/in Hg)	1,007 / 29.75	1,008 / 29.78	1,009 / 29.8	1,008 / 29.78
QFE (mb/in Hg)	1,007 / 29.74	1,008 / 29.77	1,008 / 29.78	1,008 / 29.77
Remarks	CB to South and South East	CB to South and South East	CB to South and South West	CB to South and South West

1.7.2 Automated Weather Observing System (AWOS)

Ahmad Yani Meteorological Station utilized Automated Weather Observation System (AWOS) with three different displays from three different sensor locations. The sensors were located at touchdown area of runway 13, touchdown area of runway 31 and located near the tower building on the meteorological park instrument. The following data was taken from the sensor located at the touchdown area of runway 13.

⁶ Cloud amount is assessed in total which is the estimated total apparent area of the sky covered with cloud. The international unit for reporting cloud amount for Few (FEW) is when the clouds cover 1/8 up to 2/8 area of the sky and Scatter (SCT) is when the clouds cover 3/8 up to 4/8 area of the sky.

Time (UTC)	Mag WD	Precip 1 hour	RVR 1 min	True WD 2 min	VW 2 min	Visibility	WS
11:14	179	0.001	2200	165	-	16093	9
11:15	167	0.001	2200	165	-	16093	8
11:16	164	0.001	2200	166	-	16093	14
11:17	188	0.002	2200	175	-	16093	12
11:18	177	0.002	2200	186	-	16093	6
11:19	180	0.002	2200	185	-	16093	13
11:20	184	0.003	2200	183	-	16093	13
11:21	202	0.014	2200	194	-	16093	12
11:22	189	0.201	2200	196	-	10274	11
11:23	176	0.769	2200	188	150V210	3857	7
11:24	167	1,664	2200	188	150V210	1692	9
11:25	164	2,098	2200	181	-	1225	8
11:26	162	2,439	2200	169	-	1240	12
11:27	148	2,800	2200	162	-	1427	12
11:28	155	2,955	2200	155	-	1614	10
11:29	154	3,077	2200	155	-	2424	6
11:30	151	3,189	2200	160	-	3331	5
11:31	180	3,190	2200	165	-	4791	5
11:32	215	3,208	2200	178	150V220	7481	4
11:33	207	3,212	2200	192	160V220	11021	5
Note:							
<ul style="list-style-type: none"> • Mag WD is magnetic wind direction; • Precip 1 hour is average precipitation in one hour; • RVR 1 min is Runway Visual Range; • True WD 2 min is average of true wind direction in the previous 2 minutes; • VW 2 min is average of variable wind direction in the previous 2 minutes; • WS is wind speed. 							

1.7.3 Satellite Image

The following satellite images were provided by *Badan Meteorologi Klimatologi dan Geofisika* (BMKG – Bureau of Meteorology, Climatology and Geophysics) at 1000 UTC, 1100 UTC and 1200 UTC. The images indicated development of Cumulus Congestus clouds (towering cumulus) around Semarang during the accident flight (red circle). The cloud was classified as low clouds which may produce precipitation and often release abundant rain in the form of showers⁷.

⁷ International Cloud Atlas Volume I: Manual on The Observation of Clouds and Other Meteors, that can be found in <http://wmo-cloudatlas.org/index.php/en/>

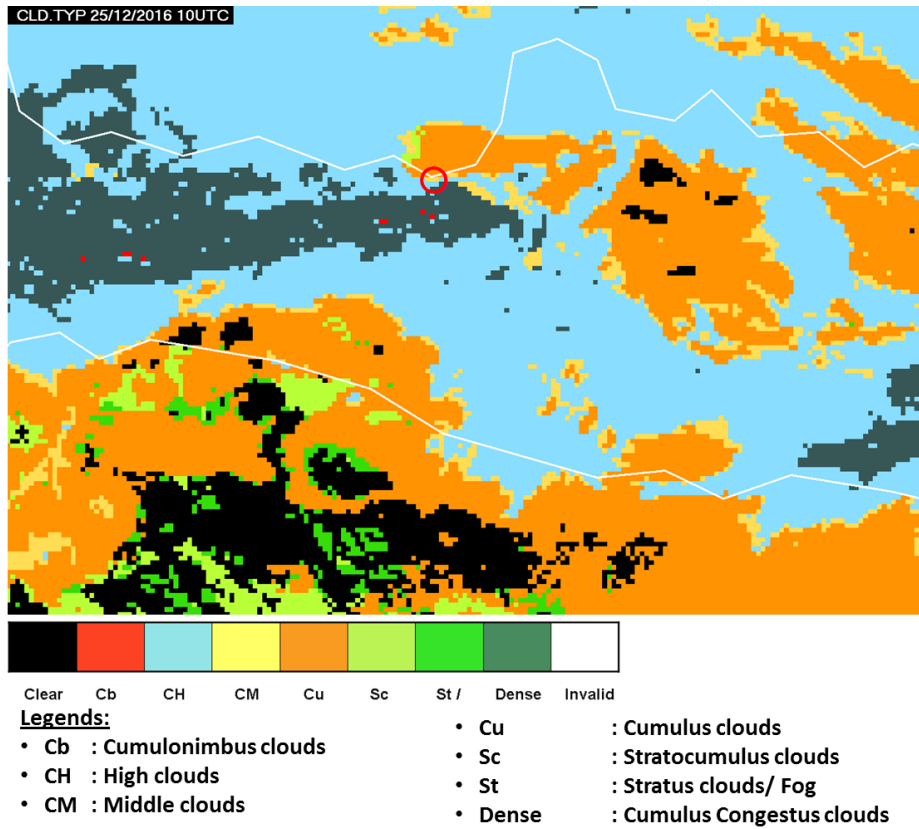


Figure 4: Satellite image at 1000 UTC (Copyright of BMKG)

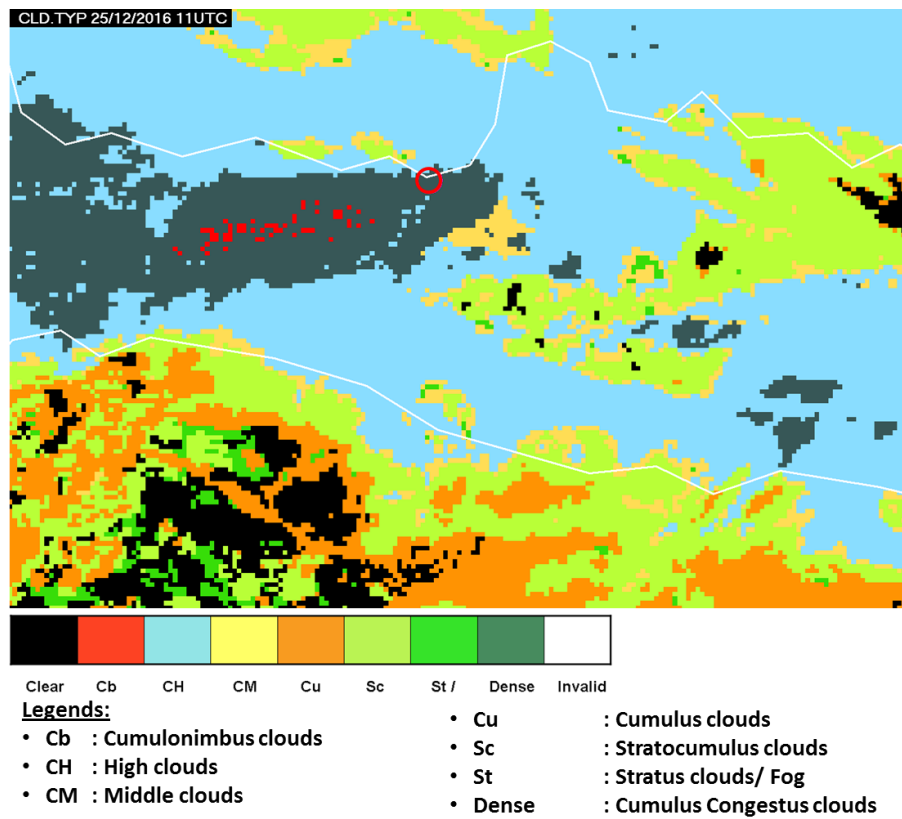


Figure 5: Satellite image at 1100 UTC (Copyright of BMKG)

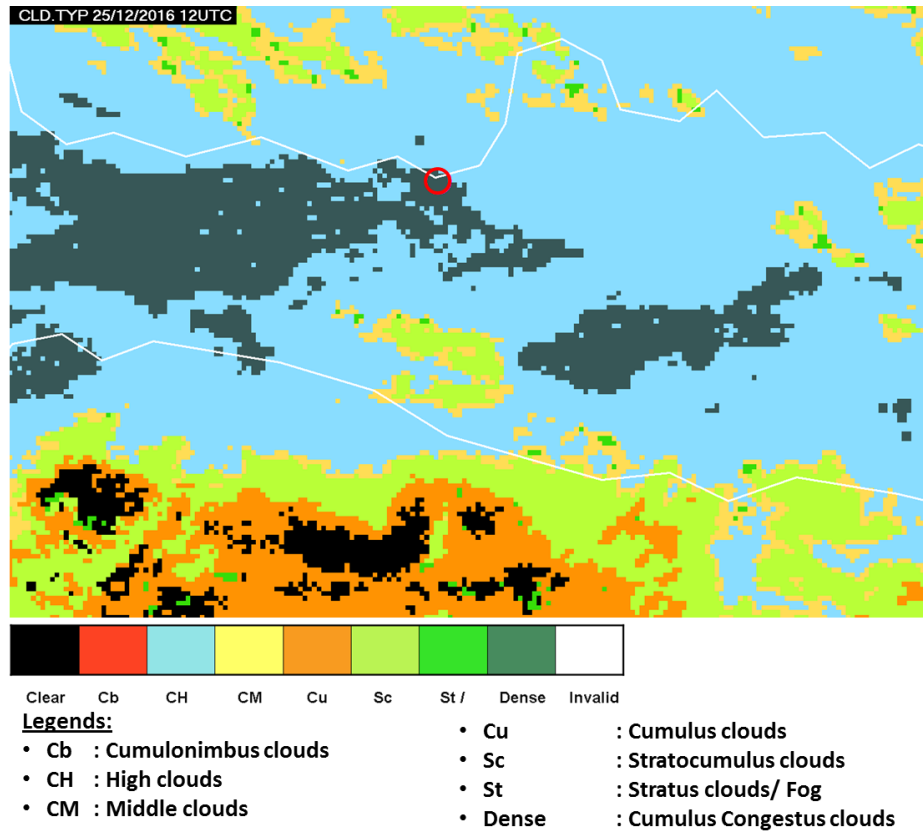


Figure 6: Satellite image at 1200 UTC (Copyright of BMKG)

1.8 Aids to Navigation

Runway 13 of Semarang has Performance Based Navigation (PBN) approach guidance facilities which utilized RNAV (GNSS) approach. The instrument approach chart provided by Directorate General of Civil Aviation on Aeronautical Information Publication (AIP) Volume II showed on the following figure.

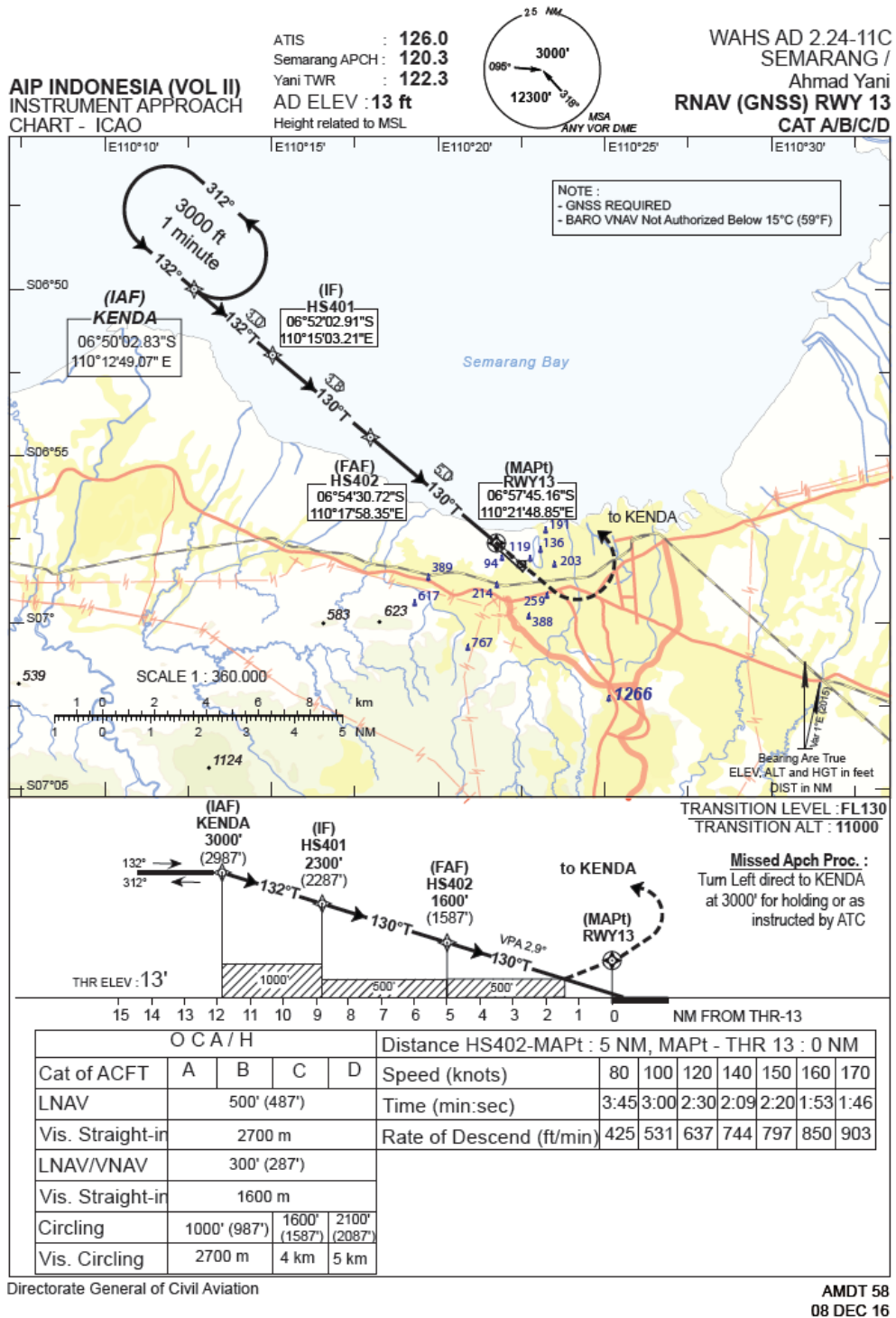


Figure 7: The GNSS approach chart published in AIP Volume II

1.9 Communications

All communications between Air Traffic Services (ATS) and the crew were normal as recorded on ground based automatic voice recording equipment and Cockpit Voice Recorder (CVR) for the duration of the flight. The quality of the recorded transmissions was good.

The excerpt of the communication will be included in the final report.

1.10 Aerodrome Information

Airport Name	: Ahmad Yani International Airport
Airport Identification	: WAHS
Airport Operator	: PT. Angkasa Pura I (Persero)
Airport Certificate	: 030/SBU-DBU/XI/2015
Validity	: 2 September 2020
Coordinate	: 06°58'35" S; 110°22'38" E
Elevation	: 13 feet
Runway Direction	: 13 – 31 (130.2° – 310.2°)
Runway Length	: 2,560 meters
Runway Width	: 45 meters
Surface	: Asphalt

1.11 Flight Recorders

1.11.1 Flight Data Recorder

The aircraft was fitted with L3-Comm Flight Data Recorder (FDR) FA-2100 model with part number 2100-4043-00 and serial number 954765. The recorder was transported to KNKT recorder facility for data downloading process. The FDR recorded 751 parameters and approximately 66 hours of aircraft operation, which was containing 70 flights including the accident flight.

PK-WGW ATR72-600

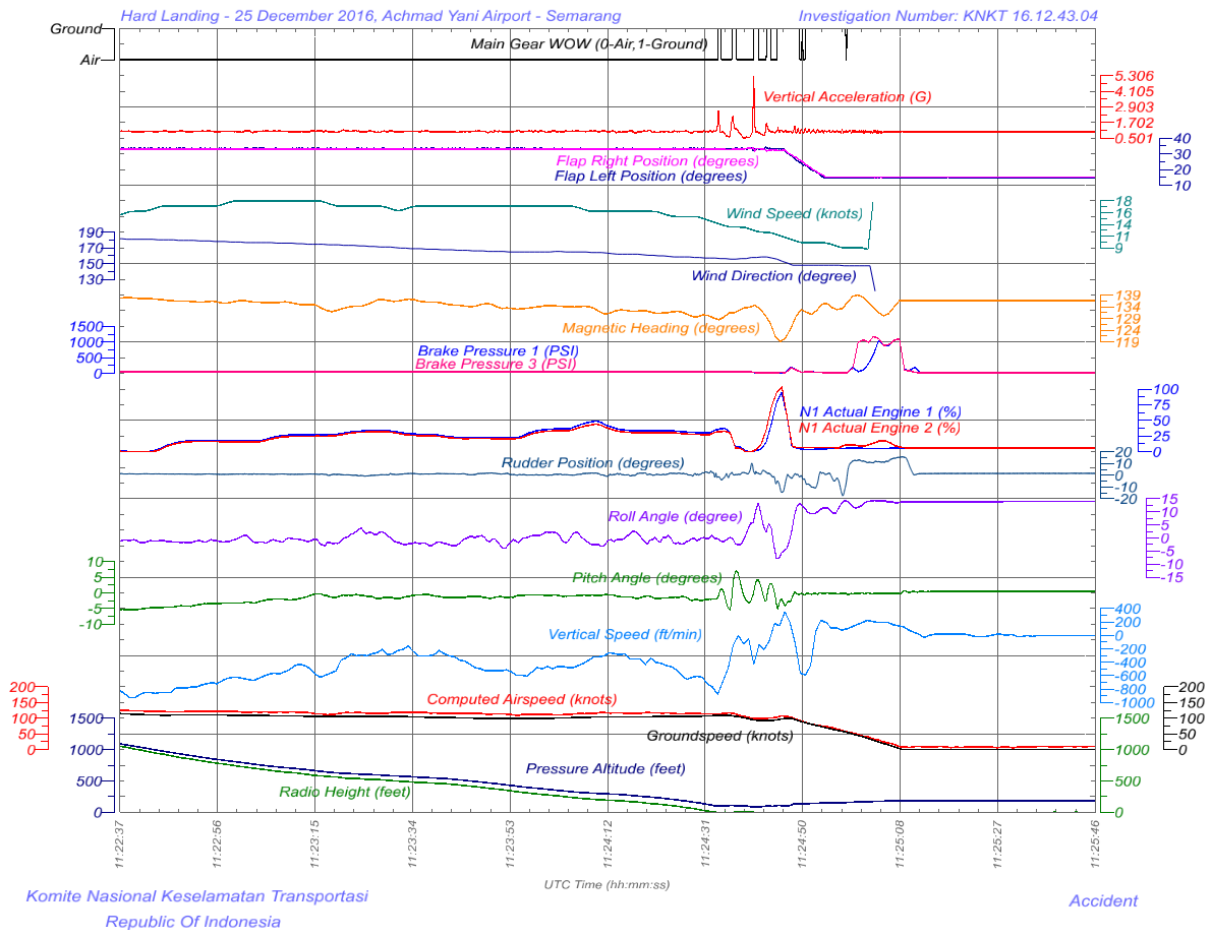


Figure 8: The significant FDR parameters

The FDR graph showed significant parameters to be analyzed for the final report such as vertical acceleration and number of touchdown, wind condition, aircraft attitude and aircraft speed.

1.11.2 Cockpit Voice Recorder

The aircraft was fitted with FA2100 model with part number 2100-1020-02 and serial number 929260. The recorder was transported to KNKT recorder facility for data downloading process. The CVR recorded 2 hours and 4 minute of good quality recording data. The significant excerpts from the CVR will be included in the final report.

1.12 Wreckage and Impact Information

There were several scratch marks on the runway, the first scratch mark was found at about 500 meter from the beginning runway 13 on the left of runway centerline, the dimension was 150 cm long and 20 cm width (figure 9).

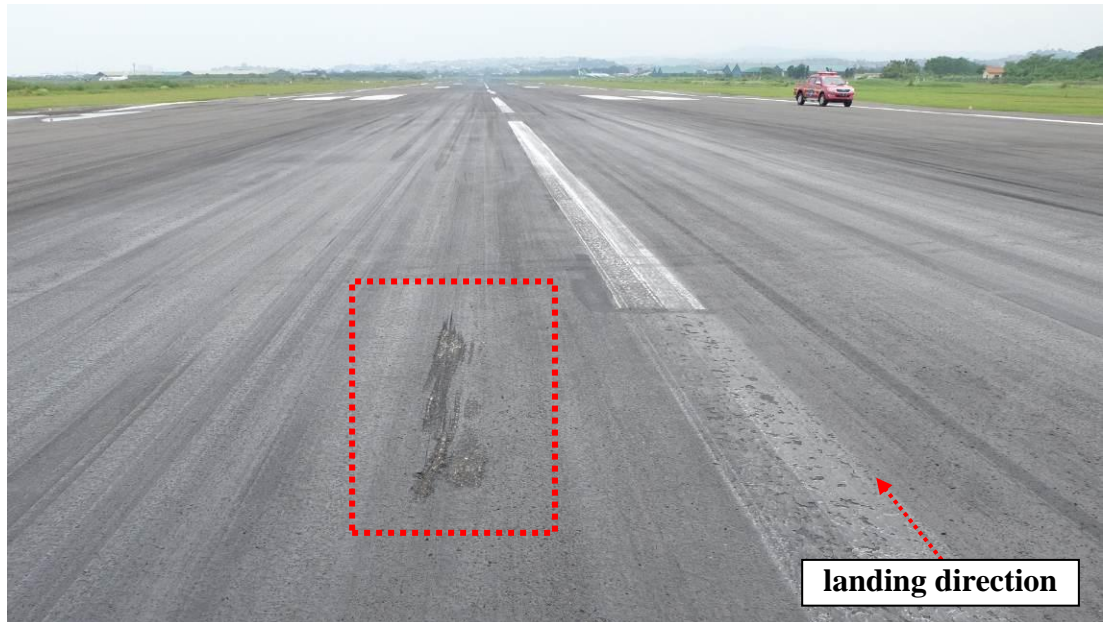


Figure 9: The first scratch

At about 390 meters from the first scratch mark, it was found white paint mark which crossed from right to the left of runway centerline (figure 10) and then at about 190 meters the white paint mark continued to cross from right to left runway centerline until the location of the aircraft stopped (figure 11).

On the right shoulder near the aircraft stopped there was propeller mark on the ground (figure 12).



Figure 10: The white marking crossed from left to right runway centreline



Figure 11: The white marking crossed from right to left runway centreline



Figure 12: The propeller scratch mark on the ground

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 stopped.

1.15 Survival Aspects

During the landing roll, the tower controller noticed abnormal attitude of the aircraft. The aircraft was tilted to the right by the indication of navigation lights position. The aircraft then deviated to the right from the runway centerline. The tower controller activated the crash bell then informed the Rescue and Fire Fighting Service (RFFS) that there was an aircraft accident near the taxiway D.

At 1126 UTC, the pilot advised the tower controller that the aircraft stopped on the runway and requested for assistance. The tower controller acknowledged the message and advised the pilot to wait for the assistance.

At 1128 UTC, the RFFS fire truck and car arrived to the site and prepared for spray the fire extinguisher agent.

At 1129 UTC, the tower controller advised the pilot to shut down the engines since the RFFS personnel had arrived near the aircraft to assist the evacuation. The right engine then was shut down followed by the left engine.

Passenger evacuation completed at approximately 10 minutes after the aircraft stopped.

1.16 Tests and Research

The right main landing gear was examined in the metallurgical engineering laboratory of Bandung Institute of Technology (*Institut Teknologi Bandung -ITB*). The examination indicated that no previous defect on the landing gear. The detail of the examination will be included in the final report.

1.17 Organizational and Management Information

1.17.1 The Aircraft Operator

Aircraft Owner	: Phoenix Aviation Limited
Address	: PO BOX 1093, Queensgate House, Grand Cayman, KY1-1102, Cayman Islands
Aircraft Operator	: PT. Wings Abadi Airlines
Address	: Jl. A.M. Sangaji No. 17 Jakarta Pusat, Indonesia

The Wings Abadi Airlines had a valid Aircraft Operator Certificate (AOC) number 121-012 which approved to conduct scheduled passenger flight operation within Indonesian territorial airspace. The Wings Air was operating 20 ATR 72-500 aircraft and 32 ATR 72-600 aircraft.

1.17.1.1 Operations Manual Part A

8.3.2.9.4 BOUNCED LANDING / LONG FLARE

If a hard and/or high bounce occurs, a go-around must be initiated.

If landing within the touchdown zone is not ensured and the remaining runway is insufficient to stop safely, a go-around must be initiated.

8.3.20.11 EMERGENCY LANDING - GENERAL

8.3.20.11.1 GENERAL

Emergency landing can be divided into:

- *Anticipated landings; and,*
- *Landing that take place without prior-warning (usually crashes), or normal landings that develop into an emergency e.g. due to failing landing gear.*

The procedures to be followed have been standardized as much as possible for all types of aircraft. It is of prime importance that each crewmember has a thorough knowledge of his duties as well as of the duties of other crewmembers to be able to take over other incapacitated crewmembers tasks.

Moreover, because of a well-instructed team working in close cooperation will be able to obtain far better results.

Furthermore, a smooth operating team like a well-oiled gear in the face of emergency instills confidence and consequently will not evoke panic easily on the part of the passengers. For psychological reasons, the PIC or SIC should give the first information about an impending emergency landing to the passengers. If this is not possible due to lack of time, the Senior Cabin Crew, where applicable, must inform the passengers of the emergency.

This should be done in a concise and discrete manner in order to avoid confusion and panic. Control of voice level and modulation play an important role in situations of this nature. The information must contain the real facts.

8.3.20.14 EVACUATION DIRECTIVES

8.3.20.14.1 GENERAL

Most emergency situations develop during the initial or final stage of the flight. It must be realized that the preparation phase may be varying brief or even non-existent. Flight crew and Cabin Crews should be prepared for expected and specially unexpected emergencies.

When during cruise an emergency develops that may require an evacuation after landing, the crewmembers must be prepared for an emergency landing and evacuation. Standard procedures cannot provide for every possibility that may arise. The information of this chapter must therefore be applied with common sense, taking into account the circumstances of the particular case. Detailed of emergency evacuation procedures are laid down in respective FCOMQRH and in SEP manual.

8.3.20.14.4 INITIATION OF THE EVACUATION

When the aircraft comes to a full stop under abnormal conditions the PIC after give a command "ATTENTION CREW ON STATION" twice and evaluate situation will decide whether evacuation is required or not, and contact the CABIN CREW -1. In this case, CABIN CREW -1 will check the outside conditions and coordinated with other CABIN CREW. If there is no command from the PIC, CABIN CREW -1 will immediately check the PIC to ensure if evacuation is required.

Criteria for initiating evacuation:

- *The PIC has the prime responsibility for initiating a passenger evacuation;*
- *If a Cabin Crew consider an evacuation is necessary he must advise the PIC of the situation and await the PIC decision;*
- *The Cabin Crews may take full responsibility for initiating the evacuation, in the following cases:*
 - *It is obvious an evacuation is imperative;*
 - *No contact with the flight crew/PIC has been possible;*
 - *The safety of people is in jeopardy such as:*
 - *Heavy smoke inside or outside the aircraft;*
 - *Fire;*
 - *Severe Structural damage.*
 - *Another Cabin Crews has started evacuating passengers. If an evacuation is initiated by a Cabin Crews, inform the Flight Crew that an evacuation is in progress.*

In case of evacuation required the PIC command: “EVACUATE” (repeated command). If evacuation is not required, the PIC should immediately make the following PA announcement: “CABIN CREW AND PASSENGER KEEP YOUR SEAT”.

After check out side conditions and coordinate with other Cabin Crews and the condition are judged safe, CABIN CREW-1 will make the following Public Address announcement:

<i>Para penumpang yang terhormat Captain sedang mengevaluasi keadaan. Tetaplah duduk dengan tenang di kursi masing. Pengumuman selengkapnya akan kami berikan secepatnya</i>	<i>Ladies and Gentlemen Captain is evaluating the situation. Please keep calm and remain seated. Further information will be given to you as soon as possible.</i>
--	--

If conditions are judge unsafe, CABIN CREW-1 will report to the cockpit immediately. The PIC will command via PA: “EVACUATE”. In this case, the PIC and the Cabin Crews will immediately execute their own procedures. If conditions are judge safe and the evacuation is not required, the PIC will immediately make PA announcement: “CABIN CREW AND PASSENGERS KEEP YOUR SEAT”

In this case, CABIN CREW-1 will make announcement via PA

<i>Para penumpang yang terhormat Keadaan pesawat sudah dapat dikendalikan. Anda kami minta agar tetap duduk dengan tenang.</i>	<i>Ladies and Gentlemen Everything is under controlled. Please keep calm and remain seated.</i>
--	---

When the aircraft comes to full stop under abnormal condition and the aircraft conditions are judge unsafe, the PIC will immediately command: “EVACUATE“. In this case, the Crewmembers will immediately execute their own procedures.

NOTE: *If no PAS available, use megaphone.*

1.17.1.2 Flight Crew Operating Manual Volume 1 & 2

2.04.05 EMERGENCY PROCEDURES

MISCELLANEOUS (page P7-001)

EMERGENCY EVACUATION ON GROUND

PROCEDURE

EMER EVACUATION ON GROUND	
AIRCRAFT / PARKING BRAKE	STOP / ENGAGE
AUTO PRESS	DUMP
ATC (VHF1)	NOTIFY
CL 1 + 2	FTR THEN FUEL SO
MIN CAB LIGHT	ON
CABIN CREW (PA)	NOTIFY
FIRE HANDLES 1 + 2	PULL
AGENTS	DISCH AS RQD
ENG START ROTARY SELECTOR	OFF / START ABORT
FUEL PUMPS 1 + 2	OFF
EVACUATION (PA)	INITIATE
● Before leaving aircraft	
BAT	OFF

COMMENTS

Careful analysis is required to decide passenger evacuation, however useful time should not be wasted.

Notify ATC on the nature of the emergency and state intentions. Only VHF 1 is available on battery.

On battery, only PA is available to communicate with cabin crew.

1.17.1.3 Standard Operation Procedures for ATR 72-600

EMERGENCY & ABNORMAL PROCEDURE

ABNORMAL SITUATIONS

3 Unusual attitude recovery (Section number 04.03, Page 1)

3.2 Bounced landing

Bounced landing may result from either a too high speed or too high slope on final. Decided GO AROUND if the plane is not stabilized (flight path, aircraft configuration, speed) at 500 ft, in case of bounce. **NEVER push forward control column, DO NOT try to land, PERFORM a go-around immediately:**

- GA Pitch
- Set Power
- Flaps ONE NOTCH, when speed > Vga

1.18 Additional Information

The investigation is continuing and will include details of the following:

- Description of the flight recorders;
- Related procedures of the operators;
- Human factors issue;
- Flight technique and aircraft system.

KNKT plans to complete the investigation within 12 months since the day of the occurrence. Should any further relevant safety issues emerge during the course of the investigation, KNKT will immediately bring the issues to the attention of the relevant parties and publish as required.

1.19 Useful or Effective Investigation Techniques

The investigation was conducted in accordance with the KNKT approved policies and procedures, and in accordance with the standards and recommended practices of Annex 13 to the Chicago Convention.

2 FINDINGS⁸

According to factual information during the investigation, the Komite Nasional Keselamatan Transportasi identified initial findings as follows:

- The pilots held valid licenses and medical certificates.
- The aircraft had valid Certificate of Airworthiness (C of A) and Certificate of Registration (C of R).
- There was no report or record of aircraft system malfunction prior to the accident.
- The weather during landing phase was slight rain.
- Prior landing, the pilot requested to reduce the approach light intensity and the intensity was reduced to the condition accepted by the pilot.
- The aircraft touched down and bounced twice. After the second bounce, the pilot attempted to go around and the aircraft touched the runway.
- The tower controller realized that the aircraft was in abnormal condition and activated the crash bell then informed the Rescue and Fire Fighting Service (RFFS).
- While waiting the assistance, the pilot kept the engines run to provide the lighting system ON in the cabin.
- After the RFFS personnel arrived near the aircraft to assist the evacuation, the tower controller advised the pilot to shut down the engines.
- Passenger evacuation completed at approximately 10 minutes after the aircraft stopped.
- Several scratch marks were found on the runway. The first mark was found at approximately 500 meters from the beginning runway 13. There was also white paint mark on the runway.
- The OM Part A and SOP for ATR 72-600 stated that go around shall be performed if a hard and/or high bounce occurs.

⁸ Findings are statements of all significant conditions, events or circumstances in the accident sequence. The findings are significant steps in the accident sequence, but they are not always causal, or indicate deficiencies. Some findings point out the conditions that pre-existed the accident sequence, but they are usually essential to the understanding of the occurrence, usually in chronological order.

3 SAFETY ACTION

At the time of issuing this preliminary report, the Komite Nasional Keselamatan Transportasi had been informed safety actions taken by PT. Wings Abadi Airlines resulting from this occurrence.

On 6 January 2017, Notice to Pilot number 02/NTP/OMIW/I/2017 was issued (see appendices 5.1) which contained instruction to review and adhere procedures as described in the Operations Manual Part A (OM-A) and Quick Reference Handbook (QRH) regarding the following issue:

- *OM-A 8.3.12 ADVERSE AND POTENTIALLY HAZARDOUS ATMOSPHERIC CONDITIONS*
- *OM-A 8.1.1.2 PRE-FLIGHT INFORMATION Collection and analysis of all pertinent meteorological information (report and forecast), including known or forecast adverse weather phenomena, such as clear air turbulence, thunderstorms, and low altitude wind shear, for the route to be flown and each airport to be used;*
- *OM-A 8.3.2.5.5 REQUIREMENT FOR STABILIZED FINAL APPROACH:*
 - *A stabilized approach is one of the key features of a safe approach and landing.*
 - *A stabilized approach is characterized by a constant-angle, constant-rate descent approach profile.*
 - *A go-around MUST be initiated immediately if an approach is NOT STABLE AT or BELOW 1000 FEET AAL (IMC) or (VMC) or after leaving circling altitude, as applicable.*
- *OM-A 8.3.2.9.4 BOUNCED LANDING / LONG FLARE :*
 - *If a hard and/or high bounce occurs, a go-around must be initiated.*
- *OM-A 8.3.2.10 GO-AROUND AND MISSED APPROACH*
 - *Flight crews are encouraged to go-around whenever any doubt exists as to the safe continuation of an approach and/or landing;*
- *OM-A 8.3.20.14 EVACUATION DIRECTIVES*

Most emergency situations develop during the initial or final stage of the flight. It must be realized that the preparation phase may be varying brief or even non-existent. Flight crew and Cabin Crews should be prepared for expected and specially unexpected emergencies.
- *In case of Emergency On Ground refer to QRH 1.02 EMER EVACUATION ON GROUND. Pilot are to follow strictly the QRH*

EMER EVACUATION ON GROUND	
AIRCRAFT / PARKING BRAKE	STOP / ENGAGE
AUTO PRESS	DUMP
ATC (VHF 1)	NOTIFY
CL 1 + 2	FTR THEN FUEL SO
MIN CAB LIGHT	ON
CABIN CREW (PA)	NOTIFY
FIRE HANDLES 1 + 2	PULL
AGENTS	DISCH AS ROD
ENG START ROTARY SELECTOR	OFF / START ABORT
FUEL PUMPS 1 + 2	OFF
EVACUATION (PA)	INITIATE
● Before leaving aircraft	
BAT	OFF

4 SAFETY RECOMMENDATIONS

While the KNKT acknowledges the safety actions taken by the operators, there still remain safety issues that need to be considered. Therefore, the KNKT issues the following Safety Recommendations addressed to:

PT. Wings Abadi Airlines

- **04-2016-43.01**


The aircraft touched down and bounced twice. After the second bounce, the pilot attempted to go around and the aircraft touched the runway. According to the OM Part A and SOP for ATR 72-600 a go around shall be performed if a hard and/or high bounce occurs. Therefore, KNKT recommends reviewing the bounce recovery training for all pilots.

- **04-2016-43.02**


After the RFFS personnel arrived near the aircraft to assist the evacuation, the tower controller advised the pilot to shut down the engines, thereafter the engines were shutdown. This condition might harm the RFFS personnel and/or passenger which evacuated before command by the flight crew members. It also could prolong the evacuation process. Therefore, KNKT recommends reviewing the emergency evacuation training including joint training of flight crew and flight attendant.

5 APPENDICES

5.1 Notice to Pilot number 02/NTP/OMIW/I/2017

	NOTICE TO PILOT			
	NOTICE NUMBER	02 /NTP/OMIW/I/2017		
	DATE OF ISSUED	06 JANUARY 2017		
RECOMENDATION FROM CASE SRG ACCIDENT	APPLICABILITY	ALL PILOT		
	DATE OF EFFECTIVENESS	06 JANUARY 2017		
	DISTRIBUTION LIST	DO	SSQ	OMP
		OR	OT	
<p>Dear Pilot</p> <p>Base on Accident on 25 December 2016 in Ahmad Yani Airport of Semarang (WAHS/SRG) :</p> <ol style="list-style-type: none"> 1. Approach in marginal weather condition (reduce visibility and rain) at night. 2. Bounce landing 3. Hard landing <p>The fully investigation is still in progress.</p> <p>Base on that accident then we recommend a few important things to be reviewed and to adhere :</p> <ul style="list-style-type: none"> • OMA 8.3.12 ADVERSE AND POTENTIALLY HAZARDOUS ATMOSPHERIC CONDITIONS • OMA 8.1.1.2 PRE-FLIGHT INFORMATION Collection and analysis of all pertinent meteorological information (report and forecast), including known or forecast adverse weather phenomena, such as clear air turbulence, thunderstorms, and low altitude wind shear, for the route to be flown and each airport to be used; • OMA 8.3.2.5.5 REQUIREMENT FOR STABILIZED FINAL APPROACH : <ul style="list-style-type: none"> ○ A stabilized approach is one of the key features of a safe approach and landing. A stabilized approach is characterized by a constant-angle, constant-rate descent approach profile. ○ A go-around MUST be initiated immediately if an approach is NOT STABLE AT or BELOW 1000 FEET AAL (IMC) or (VMC) or after leaving circling altitude, as applicable. • OMA 8.3.2.9.4 BOUNCED LANDING / LONG FLARE : <ul style="list-style-type: none"> ○ If a hard and/or high bounce occurs, a go-around must be initiated. • OMA 8.3.2.10 GO-AROUND AND MISSED APPROACH <ul style="list-style-type: none"> ○ Flight crews are encouraged to go-around whenever any doubt exists as to the safe continuation of an approach and/or landing; • OMA 8.3.20.14 EVACUATION DIRECTIVES <ul style="list-style-type: none"> • Most emergency situations develop during the initial or final stage of the flight. It must be realized that the preparation phase may be varying brief or even non-existent. Flight crew and Cabin Crews should be prepared for expected and specially unexpected emergencies. 				

Page : 1 of 2

	NOTICE TO PILOT			
	NOTICE NUMBER	02/NTP/OMIW/I/2017		
RECOMENDATION FROM CASE SRG ACCIDENT	DATE OF ISSUED	06 JANUARY 2017		
	APPLICABILITY	ALL PILOT		
	DATE OF EFFECTIVENESS	06 JANUARY 2017		
	DISTRIBUTION LIST	DO	SSQ	OMP
		OR	OT	

- In case of Emergency On Ground refer to QRH 1.02 EMER EVACUATION ON GROUND. Pilot are to follow strictly the QRH

	EMERGENCY	1.02
72		FEB 12 001

EMER EVACUATION ON GROUND

AIRCRAFT / PARKING BRAKE	STOP / ENGAGE
AUTO PRESS	DUMP
ATC (VHF 1)	NOTIFY
CL 1 + 2	FTR THEN FUEL SO
MIN CAB LIGHT	ON
CABIN CREW (PA)	NOTIFY
FIRE HANDLES 1 + 2	PULL
AGENTS	DISCH AS REQ
ENG START ROTARY SELECTOR	OFF / START ABORT
FUEL PUMPS 1 + 2	OFF
EVACUATION (PA)	INITIATE
● Before leaving aircraft	
BAT	OFF

Regards,

Flight Operation Manager

KOMITE NASIONAL KESELAMATAN TRANSPORTASI REPUBLIK INDONESIA

Jl. Medan Merdeka Timur No.5 Jakarta 10110 INDONESIA

Phone : (021) 351 7606 / 384 7601 Fax : (021) 351 7606 Call Center : 0812 12 655 155

website 1 : <http://knkt.dephub.go.id/webknkt/> website 2 : <http://knkt.dephub.go.id/knkt/>

email : knkt@dephub.go.id