



**KOMITE NASIONAL KESELAMATAN TRANSPORTASI  
REPUBLIC OF INDONESIA**

# **PRELIMINARY**

**KNKT.17.08.25.04**

**Aircraft Accident Investigation Report**

**PT. Lion Mentari Airlines and PT. Wings Abadi Airlines**  
**Boeing 737-900ER; PK-LJZ and ATR 72-500; PK-WFF**

**Kualanamu International Airport, Medan**

**Republic of Indonesia**

**3 August 2017**



**2017**

This preliminary investigation report was produced by the Komite Nasional Keselamatan Transportasi (KNKT), 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 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.

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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.

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## ABBREVIATIONS AND DEFINITIONS

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AC	: Advisory Circular
AOC	: Airline Operator Certificate
ATC	: Air Traffic Control
ATIS	: Automatic Terminal Information Service
ATPL	: Airline Transport Pilot License
ATS	: Air Traffic Services
AWOS	: Automatic Weather Observation System
BMKG	: <i>Badan Meteorologi Klimatologi Geofisika</i> / Meteorological Climatological and Geophysics Agency
C of A	: Certificate of Airworthiness
C of R	: Certificate of Registration
cm	: Centimeters
CVR	: Cockpit Voice Recorder
DA	: Decision Altitude
FA	: Flight Attendant
FDR	: Flight Data Recorder
FOD	: Foreign Object Debris
ft	: Feet
ICAO	: International Civil Aviation Organization
KNKT	: Komite Nasional Keselamatan Transportasi
LT	: Local Time
m	: Meters
NTSB	: National Transport Safety Board
PF	: Pilot Flying
PIC	: Pilot in Command
PM	: Pilot Monitoring
RET	: Rapid Exit Taxiway
SIC	: Second in Command
SOP	: Standard Operation Procedures
UTC	: Universal Coordinated Time

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## SYNOPSIS

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On 3 August 2017, a Boeing 737-900 ER aircraft was being operated by PT. Lion Mentari Airlines (Lion Air) as a scheduled passenger flight from Sultan Iskandar Muda International Airport, Banda Aceh (WITT) to Kualanamu International Airport, Medan (WIMM) with flight number JT 197.

At 1010 LT (0310 UTC) on daylight condition, the JT197 departed from Banda Aceh with 151 persons on board consisted of two pilots, five flight attendants and 144 passengers. The flight since departure until commenced to approach was uneventful.

An ATR 72-500 aircraft was being operated by PT. Wings Abadi Airlines (Wings Air) as scheduled passenger flight from Medan with intended destination to Cut Nyak Dien Airport, Meulaboh (WITC) with flight number IW1252. On board the IW1252 were two pilots, one observer pilot, two flight attendants and 67 passengers.

At 0356 UTC, the IW1252 pilot requested taxi clearance to runway 23 to the Medan Ground controller and instructed to follow U2 taxi route, which was from apron V to holding point runway 23 on taxiway C via taxiway U – T – and B. The IW1252 pilot requested to depart via intersection taxiway D and was approved by Medan Tower controller.

At 0357 UTC, the JT197 pilot reported to the Medan Tower controller that the aircraft has established the localizer of Instrument Landing System (ILS) runway 23. The Medan Tower controller acknowledged and issued landing clearance with additional information of wind condition and value of QNH.

At 04:00:01 UTC, the Medan Tower issued clearance to IW1252 pilot: “*IW1252 behind traffic Lion on short final landed passing line up behind runway 23 from intersection D additional clearance after departure direct Meulaboh*”.

At 04:00:13 UTC, the IW1252 pilot responded: “*after departure direct to Meulaboh IW1252*”.

At 04:00:15 UTC, the Medan Tower controller acknowledged by stated: “*Namu Tower*”. Thereafter, IW1252 continued the taxi to line up runway 23.

At 04:00:50 UTC, the JT197 touched down runway 23 and few second later impacted with the IW1252. No one injured at this occurrence and both aircraft were substantially damaged.

Following this occurrence, the Komite Nasional Keselamatan Transportasi (KNKT) had been informed several safety actions taken by related parties. The KNKT acknowledges the safety actions taken by the operators and aircraft manufacturer, there still remain safety issues that need to be considered. Therefore, the KNKT issues safety recommendations addressed to AirNav Indonesia and PT. Wings Abadi Airlines.

The investigation is continuing and 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.

Investigation involving National Transport Safety Board (NTSB), United States of America that assigned accredited representative according to the ICAO Annex 13.

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# 1 FACTUAL INFORMATION

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## 1.1 History of the Flight

On 3 August 2017, a Boeing 737-900 ER aircraft was being operated by PT. Lion Mentari Airlines (Lion Air) as a scheduled passenger flight from Sultan Iskandar Muda International Airport, Banda Aceh (WITT) to Kualanamu International Airport, Medan (WIMM)<sup>1</sup> with flight number JT 197.

At 1010 LT (0310 UTC<sup>2</sup>) on daylight condition, the JT197 departed from Banda Aceh with 151 persons on board consisted of two pilots, five flight attendants and 144 passengers. The Pilot in Command (PIC) acted as Pilot Flying (PF) and the Second in Command (SIC) acted as Pilot Monitoring (PM). The flight was the second flight of the day for both pilots. There was no report or record of aircraft technical system abnormality prior to the departure until the time of occurrence. The flight since departure until commenced to approach was uneventful.

An ATR 72-500 aircraft was being operated by PT. Wings Abadi Airlines (Wings Air) as scheduled passenger flight from Medan with intended destination to Cut Nyak Dien Airport, Meulaboh (WITC) with flight number IW1252. On board the IW1252 were two pilots, one observer pilot, two flight attendants and 67 passengers. The PIC acted as Pilot Flying PF and the SIC acted as PM.

According to the filed flight plan, the IW1252 flight was scheduled to depart at 0345 UTC. Prior to departure there was problem with passenger baggage handling and delayed the departure.

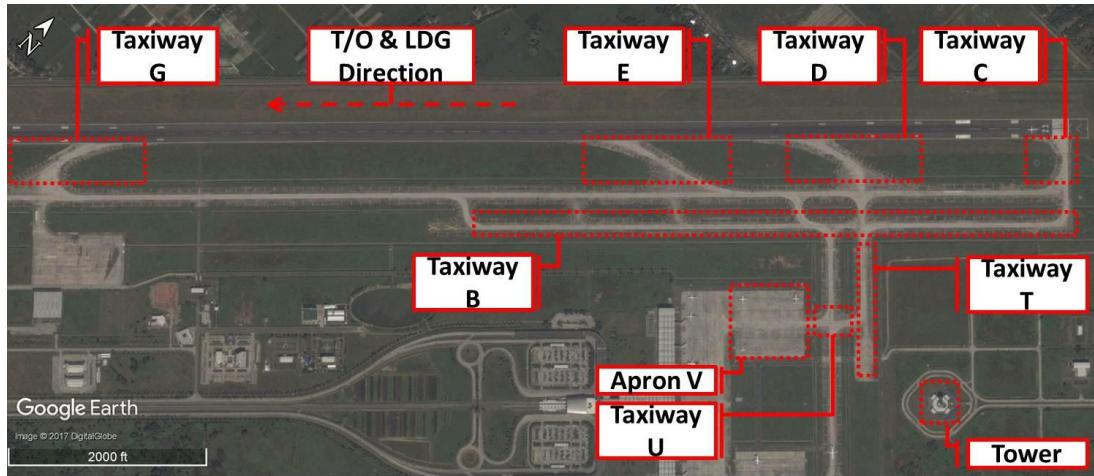
At 0354 UTC, the Flight Attendant (FA) of IW1252 advised to the IW1252 pilot that the boarding process has completed. The IW1252 pilot then requested to Medan Ground controller for push back and engine start and was approved.

At 0356 UTC, the IW1252 pilot requested taxi clearance to runway 23 to the Medan Ground controller and instructed to follow U2 taxi route, which was from apron V to holding point runway 23 on taxiway C via taxiway U – T – and B.

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<sup>1</sup> Kualanamu International Airport, Medan (WIMM) will be named as Medan for the purpose of this report..

<sup>2</sup> 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.



**Figure 1: The aerodrome layout**

At 0357 UTC, the JT197 pilot reported to the Medan Tower controller that the aircraft has established the localizer of Instrument Landing System (ILS) runway 23. The Medan Tower controller acknowledged and issued landing clearance with additional information of wind condition and value of QNH.

At 0358 UTC, the Medan Ground controller instructed IW1252 pilot to contact Medan Tower controller for further instruction. The IW1252 pilot contacted Medan Tower controller and was instructed to continue taxi and hold on short of runway 23. The IW1252 pilot requested to depart via intersection taxiway D and was approved by Medan Tower controller. Afterward the control on Medan Tower was handed over to the controller who was previously had rest.

At 0359 UTC, the IW1252 pilot advised the Medan Tower controller that the aircraft was on short runway 23. The Medan Tower controller confirmed whether IW1252 able for immediate departure. There was no reply and the Medan Tower controller repeated the confirmation and was replied that the IW1252 was able for immediate departure.

At 04:00:01 UTC, the Medan Tower issued clearance to IW1252 pilot: “*IW1252 behind traffic Lion on short final landed passing line up behind runway 23 from intersection D additional clearance after departure direct Meulaboh*”.

At 04:00:13 UTC, the IW1252 pilot responded: “*after departure direct to Meulaboh IW1252*”.

At 04:00:15 UTC, the Medan Tower controller acknowledged by stated: “*Namu Tower*”. Thereafter, IW1252 continued the taxi to line up runway 23.

At 04:00:18 UTC, there was another arriving aircraft advised the Medan Tower controller that the aircraft has established localizer ILS runway 23 and was instructed to continue the landing approach. The Medan Tower controller also informed the arriving aircraft pilot about the latest surface wind, QNH and traffic information that there was aircraft would depart from runway 23. The arriving aircraft pilot responded that the departure traffic was monitored.

At 04:00:50 UTC, the JT197 touched down runway 23 and few second later impacted with the IW1252.

At 04:01:00 UTC, the JT197 pilot confirmed to the Medan Tower controller of another aircraft on the runway. The Medan Tower controller responded that there was aircraft on the runway. The air traffic control supervisor on duty then took over the communication on Medan Tower.

At 04:01:47 UTC, the JT197 pilot attempted to contact the Medan Tower controller twice, and responded at 04:02:01 UTC by the Medan Tower controller who then instructed to vacate the runway via taxiway G.

At 04:02:05 UTC, the JT197 pilot advised to the Medan Tower controller that the aircraft has touched down and asked why there was another aircraft on runway 23. The Medan Tower controller responded the pilot to standby.

At 04:02:30 UTC, the Medan Tower controller instructed the other arriving aircraft pilot to make overshooting due to traffic. The other arriving aircraft pilot requested to make orbit to the left and was approved.

At 04:03:02 UTC, the IW1252 pilot contacted Medan Tower controller and responded to standby. The Medan Tower controller then instructed the JT197 pilot to contact Medan Ground controller.

At 04:03:18 UTC, the JT197 pilot contacted the Medan Ground controller then received taxi clearance to parking bay number 31.

At 04:03:20 UTC, the Medan Tower controller issued takeoff clearance to the IW1252 pilot and to turn left heading 315 after airborne and responded by the IW1252 pilot “negative”. The Medan Tower controller then instructed the IW1252 pilot to hold on the runway.

At 04:04:13 UTC, the Medan Tower controller instructed the other arriving aircraft pilot to climb to 4,000 feet and contact Medan Approach for further instruction.

At 04:04:28 UTC, the Medan Tower controller requested to Medan Approach controller the departure clearance for the IW1252 and the IW1252 was cleared to direct flight to Meulaboh.

At 04:04:40 UTC, the Medan Tower controller issued takeoff clearance to IW1252 pilot and the IW1252 pilot responded by requesting to return the aircraft to apron to check whether any damage on the aircraft. The Medan Tower controller approved the request and instructed to vacate runway via taxiway E then to contact the Medan Ground controller.

At 04:05:21 UTC, there was another departure aircraft pilot advised Medan Tower controller that the aircraft was on taxiway C and holding on short runway 23. The Medan Tower controller instructed the other departure aircraft pilot to standby. After coordinating with Medan Approach controller and received clearance for other departure aircraft, the Medan Tower controller instructed the other departure pilot to line up runway 23 and then issued takeoff clearance.

At 04:07:17 UTC, the IW1252 pilot contacted the Medan Ground controller then received taxi clearance to parking bay number 2.

At 04:08:38 UTC, the other arriving pilot contacted the Medan Tower controller again and received instruction to continue the landing approach.

At 04:08:55 UTC, the JT197 pilot advised the Medan Ground controller the possibility of aircraft debris on the runway and might become hazard to the other aircraft. The Medan Ground controller acknowledged the information.

At 04:10:26 UTC, the other departure pilot advised that there was Foreign Object Debris (FOD) on the runway and was responded to contact the Medan Approach controller.

At 04:10:44 UTC, the Medan Tower controller issued landing clearance to other arriving aircraft pilot and acknowledged.

At 04:10:51 UTC, the JT197 pilot re-advised the Medan Ground controller that the debris was on the runway abeam of taxiway A and was responded that the runway maintenance unit has been informed.

At 04:14:06 UTC, the other arriving pilot after landing on runway 23 advised the Medan Tower controller that there was FOD on the runway and was acknowledged.

The IW1252 and JT197 taxied to the parking bay uneventfully and the passenger disembarked normally.

At 04:31:11 UTC, the Medan Tower controller announced to all aircraft that due to FOD the runway would be closed until 0440 UTC. The runway was reopened and resumed to normal operation at 0455 UTC.



**Figure 2: PK-LJZ and PK-WFF after the accident**

## **1.2 Injuries to Persons**

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

## **1.3 Damage to Aircraft**

Both aircraft were substantially damaged. The damages were found on the left wing of JT197 and the right wing of IW1252.

## **1.4 Other Damage**

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

## 1.5 Personnel Information

### 1.5.1 Pilot Information of JT197

	<b>PI</b> C	<b>SIC</b>
Gender	Male	Male
Age	45 years old	23 years old
Nationality	Indonesia	Indonesia
Marital status	Married	Single
Date of joining company	2 April 2014	10 March 2016
License	ATPL	CPL
Date of issue	2 February 2015	30 June 2015
Aircraft type rating	Boeing 737 NG	Boeing 737 NG
Instrument rating validity	28 February 2018	30 November 2017
Medical certificate	First Class	First Class
Last of medical	27 February 2017	27 April 2017
Validity	31 August 2017	31 October 2017
Medical limitation	Shall wear lenses that correct for distant vision and possess glasses that correct for near vision.	None
Last line check	25 April 2017	10 April 2017
Last proficiency check	22 February 2017	24 November 2017
<b>Flying experience</b>		
Total hours	2,300 hours	500 hours
Total on type	2,296 hours	500 hours
Last 90 days	273 hours	229 hours
Last 60 days	173 hours	160 hours
Last 24 hours	11 hours 30 minutes	11 hours 30 minutes
This flight	1 hour 5 minutes	1 hour 5 minutes

### 1.5.2 Pilot Information of IW1252

	<b>PIC</b>	<b>SIC</b>
Age	59 years old	23 years old
Nationality	Indonesia	Indonesia
Date of joining company	4 April 2016	21 March 2016
License	ATPL	CPL
Date of issue	25 January 1996	8 September 2016
Aircraft type rating	ATR 72-500	ATR 72-500
Instrument rating validity	30 April 2018	31 December 2017
Medical certificate	First Class	First Class
Last of medical	26 January 2017	15 March 2017
Validity	31 January 2018	30 September 2017
Medical limitation	Shall wear lenses that correct for distant vision and possess glasses that correct for near vision.	None
Last line check	21 December 2016	08 June 2017
Last proficiency check	1 April 2017	1 December 2016
<b>Flying experience</b>		
Total hours	13,006 hours	263 hours 50 minutes
Total on type	624 hours	109 hours
Last 90 days	232 hours	76 hours 50 minutes
Last 60 days	172 hours	14 hours 25 minutes
Last 24 hours	2 hours	-
This flight	20 minutes	20 minutes

### 1.5.3 Air Traffic Controller

	<b>Tower</b>	<b>Ground</b>	<b>Supervisor</b>
Age	24 years old	23 years old	34 years old
Nationality	Indonesia	Indonesia	Indonesia
Year of joining company	2017	2016	2014
License	Air Traffic Control License	Air Traffic Control License	Air Traffic Control License
Date of issue	21 December 2015	21 December 2015	1 July 2015

	<b>Tower</b>	<b>Ground</b>	<b>Supervisor</b>
Rating	Aerodrome Control	Aerodrome Control	<ul style="list-style-type: none"> <li>• Aerodrome Control</li> <li>• Approach Control Surveillance</li> </ul>
Validity	September 2017	December 2017	December 2017
Medical certificate	Third Class	Third Class	Third Class
Last of medical	6 June 2017	6 June 2017	5 June 2017
Validity	6 June 2018	6 June 2018	5 June 2018
Medical limitation	None	None	None
ICAO Language Proficiency	Level 4	Level 4	Level 4
Validity	20 November 2018	20 November 2018	12 August 2019
<b>Working time<sup>3</sup></b>			
Last 7 days	33 hours	27 hours	27 hours
Last 24 hours	3 hours	3 hours	3 hours
<b>Duty time<sup>4</sup></b>			
Last 7 days	10 hours 2 minutes	8 hours 2 minutes	10 hours
Last 24 hours	2 minutes	2 minutes	None

## 1.6 Aircraft Information

### 1.6.1 General

	<b>JT197</b>	<b>IW1252</b>
Registration Mark	PK-LJZ	PK-WFF
Manufacturer	The Boeing Company	Avions de Transport Regional (ATR)
Country of Manufacturer	United States of America	France
Type/Model	Boeing 737-9GP (ER)	72-212A
Serial Number	37296	0869
Year of Manufacture	9 August 2012	2009
Certificate of Airworthiness		
Issued	13 August 2016	1 December 2016

<sup>3</sup> Working time is the time period when the person attends their particular working shift.

<sup>4</sup> Duty time is the time period when the person performs their duty to provide air traffic control service.

	<b>JT197</b>	<b>IW1252</b>
Validity	12 August 2017	30 November 2017
Category	Transport	Transport
Limitations	None	None
Certificate of Registration		
Number	3140	2682
Issued	13 August 2016	21 December 2016
Validity	12 August 2019	20 December 2019
Time Since New	13,773 hours 15 minutes	14,321 hours 40 minutes
Cycles Since New	10213	16,132 cycles

### 1.6.2 Engines

	<b>JT197</b>	<b>IW1252</b>
Manufacturer	CFM International	Pratt & Whitney Canada
Type/Model	CFM56-7B26E	PW127M
Serial Number-1 engine	962120	PCE-ED0563
▪ Time Since New	13,773 hours 15 minutes	8,786 hours 12 minutes
▪ Cycles Since New	10,213 cycles	9,020 cycles
Serial Number-2 engine	962129	PCE-ED00765
▪ Time Since New	13,773 hours 15 minutes	3,695 hours 36 minutes
▪ Cycles Since New	10,213 cycles	4,311 cycles

## 1.7 Meteorological Information

The meteorological data for Kualanamu International Airport was provided by meteorology station of *Badan Meteorologi Klimatologi dan Geofisika* (BMKG – Bureau of Meteorology, Climatology and Geophysics). The station utilized Aerodrome Terminal Information Services (ATIS) and Automated Weather Observation System (AWOS).

The meteorological report for Kualanamu International Airport on 3 August 2017 was as follows:

	<b>0330 UTC</b>	<b>0400 UTC</b>	<b>0430 UTC</b>
Wind	080° / 5 knots variable between 030° and 120°	110° / 7 knots variable between 040° and 140°	060° / 7 knots variable between 040° and 100°

	<b>0330 UTC</b>	<b>0400 UTC</b>	<b>0430 UTC</b>
Visibility	9 km	$\geq 10$ km	$\geq 10$ km
Weather	Cloudy	Cloudy	Cloudy
Cloud <sup>5</sup>	BKN 018	BKN 018	BKN 018
TT/TD	30°C / 26°C	30°C / 25°C	31°C / 26°C
QNH	1,010 mb	1,010 mb	1,009 mb

## 1.8 Aids to Navigation

The Runway 23 of Kualanamu International Airport was equipped with Instrument Landing System (ILS) category 1 with Decision Altitude (DA)<sup>6</sup> was 230 feet. There was no record or report of system malfunction for the ILS during the accident.

## 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	:	Kualanamu International Airport
Airport identification	:	WIMM
Airport operator	:	PT. Angkasa Pura II (Persero)
Airport certificate	:	073/SBU-DBU/VII/2013, valid up to 5 July 2018
Coordinate	:	03° 38' 32" N; 098° 53' 07" E
Elevation	:	23 feet
Runway direction	:	05/23 (045°/225°)
Runway length	:	3,750 meters
Runway width	:	60 meters
Surface	:	Asphalt concrete

<sup>5</sup> 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 Broken (BKN) is when the clouds cover 5/8 up to 7/8 area of the sky.

<sup>6</sup> Decision Altitude (DA) is a specified lowest height or altitude in the approach descent at which, if the required visual reference to continue the approach (such as the runway markings or runway environment) is not visible to the pilot, the pilot must initiate a missed approach.

## **1.11 Flight Recorders**

The Flight Data Recorder (FDR) and Cockpit Voice Recorder (CVR) of both aircraft were transported to KNKT recorder facility for data downloading process.

### **1.11.1 Flight Data Recorder**

#### **JT197**

The aircraft was fitted with Honeywell Flight Data Recorder (FDR) HFR5-D model with part number 980-4750-009 and serial number FDR-01723. The FDR recorded 1,265 parameters and approximately 53.54 hours of aircraft operation, which was containing 39 flights including the accident flight.

#### **IW1252**

The aircraft was fitted with L-3 Aviation Recorders Flight Data Recorder (FDR) FA2100 model with part number 2100-4043-00 and serial number 000603281. The FDR recorded 431 parameters and approximately 200.59 hours of aircraft operation, which was containing 83 flights including the accident flight.

The significant parameter of the FDR will be included in the Final Report

### **1.11.2 Cockpit Voice Recorder**

#### **JT197**

The aircraft was fitted with Honeywell Solid State Cockpit Voice Recorder (CVR) model with part number 980-6022-001 and serial number 120-15334. The CVR recorded 2 hours 52 minutes of good quality recording data.

#### **IW1252**

The aircraft was fitted with L-3 Aviation Recorders Cockpit Voice Recorder (CVR) FA2100 model with part number 2100-1020-02 and serial number 000888669. The CVR recorded 2 hours 4 minutes of good quality recording data.

The significant excerpt of the CVR will be included in the Final Report.

## 1.12 Wreckage and Impact Information

Debris was found on the runway after the collision. The following figure was taken a few minutes after the collision.



**Figure 3: The debris on runway**

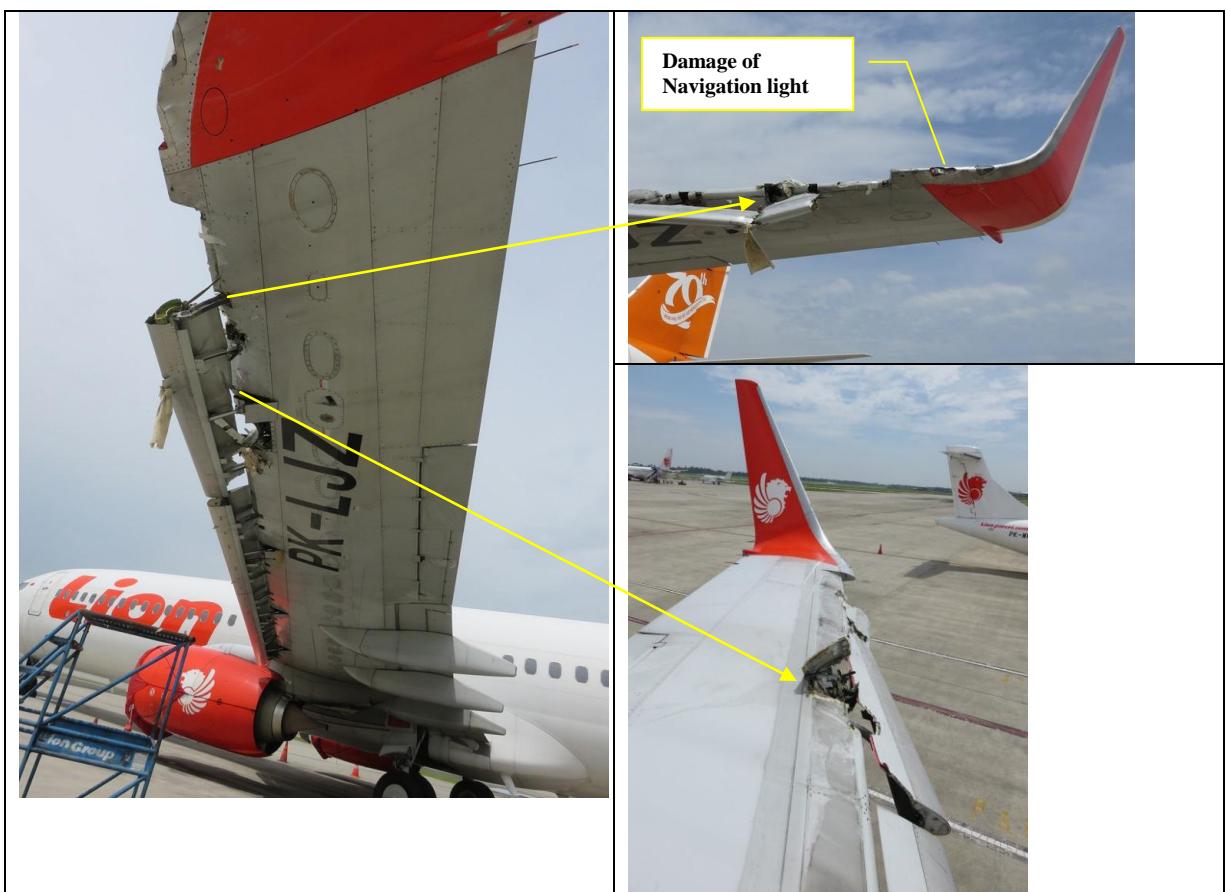
### 1.12.1 JT197

The left wing was damaged on the wing leading edge approximately 3.4 meter long. The slat number 1 was damage approximately  $3.4 \times 0.4$  meters. Part of the slat with dimension approximately  $65 \times 40$  centimeters was detached.



**Figure 4: The damaged wing of JT197**

The wing let area had several dents including damaged on the navigation light. The damages are as follows:



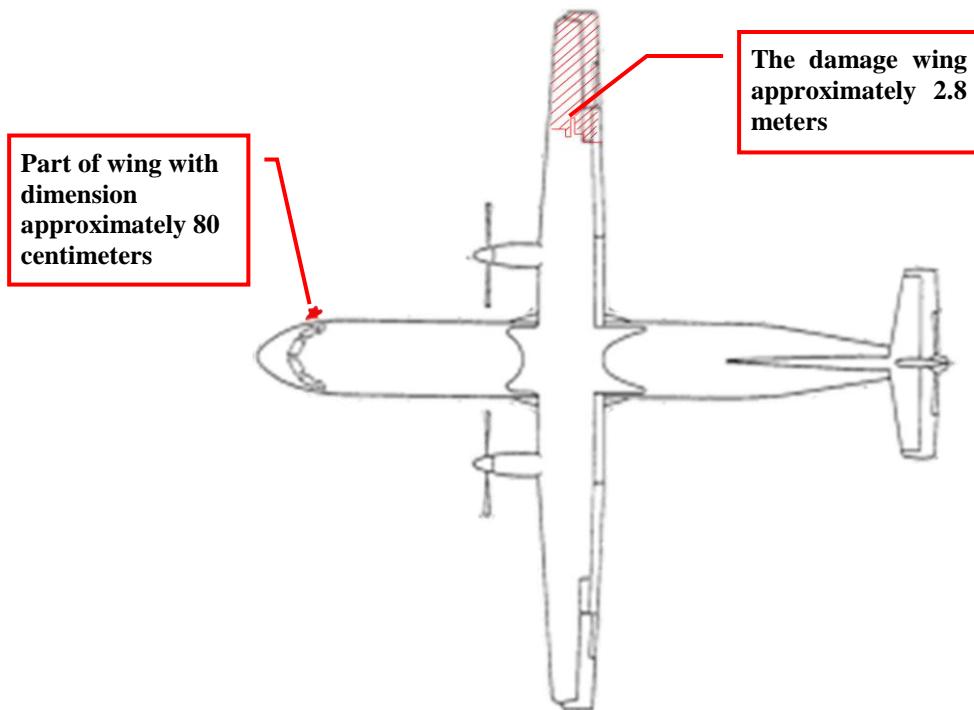
**Figure 5: The left wing damage location**



**Figure 6: Part of slat number 1 recovered from the runway**

### 1.12.2 IW1252

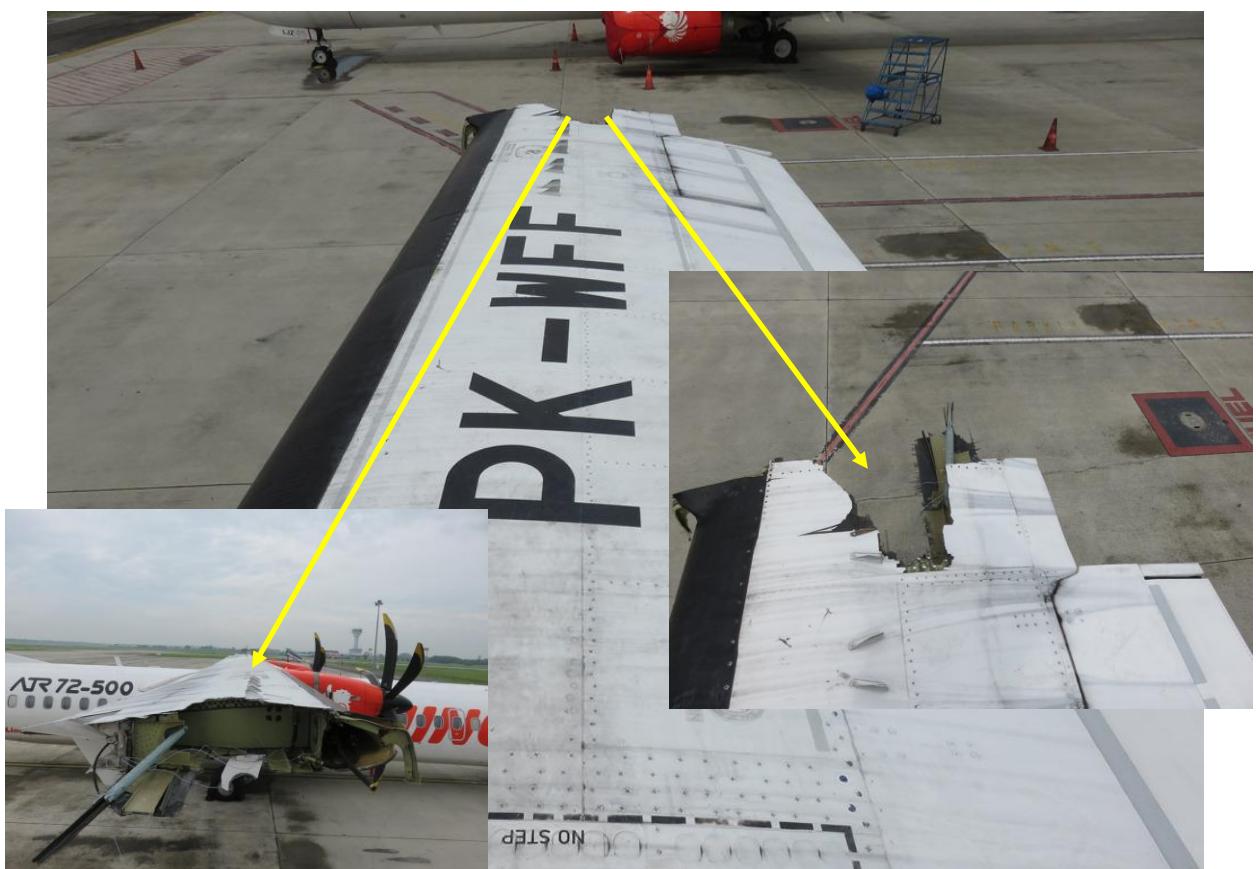
The right wing from wing rib 24 until the wing tip with dimension approximately of 2.8 meter was broken and detached from the aircraft. Part of the damage wing was stuck at right pitot tube. The illustration of the damage is shown in the figure below.



**Figure 7: The IW1252 damage**



**Figure 8: Damages on the right wing and part of wing that stuck at the pitot tube**



**Figure 9: The damaged wing**



**Figure 10: Part of the damage wing that stuck at the pitot tube**

During the investigation, KNKT reassembled the right wing to have the better view of the damage. The reassembled wing is shown in the figure below.



**Figure 11: The reassembled wing**

## **1.13 Medical and Pathological Information**

This section will be included in the final report.

## **1.14 Fire**

There was no evidence of fire during this accident.

## **1.15 Survival Aspects**

After the accident, the JT197 continued taxi to the apron while the IW1252 returned to apron. Passengers of both aircraft disembarked normally.

## **1.16 Tests and Research**

Prior to the issuance of this report, there was no test and research has been conducted. Should any test and research perform during the investigation, it would be included in the final report.

## **1.17 Organizational and Management Information**

### **1.17.1 PT. Lion Mentari Airlines**

PT. Lion Mentari Airlines which has an address on Jalan Gajah Mada No. 7 Jakarta Pusat, Republic of Indonesia. The aircraft operator has valid Air Operator Certificate (AOC) number 121-010.

The JT 197 aircraft was owned by Pacific Aircraft Leasing, LLC, which has an address at 1100 North Market Street, Wilmington, DE, 19890-1605 United States of America and operated by PT. Lion Mentari Airlines.

### **1.17.2 PT. Wings Abadi Airlines**

PT. Wings Abadi Airlines which has an address on Jalan A.M. Sangaji No. 17 Jakarta Pusat, Indonesia. The aircraft operator has valid Air Operator Certificate (AOC) number 121-012. The Wings Air was operating 20 ATR 72-500 aircraft and 32 ATR 72-600 aircraft.

The IW1252 aircraft was owned by Pacific Aviation 8A S.A.S., which has an address at 23 Rue de Roule, 75001 Paris, France and operated by PT. Wings Abadi Airlines.

### **1.17.3 AirNav Indonesia**

AirNav Indonesia (*Perum LPPNPI – Lembaga Penyelenggara Pelayanan Navigasi Penerbangan Indonesia*) is a state-owned enterprise which provides air navigation services within Indonesia airspace including the provision of air traffic control services in Medan. The services provided by AirNav Indonesia branch office Medan provided by aerodrome tower unit (Medan Tower) and approach control unit (Medan Approach).

### **1.17.4 PT. Angkasa Pura II**

PT. Angkasa Pura II is a state-owned enterprise which engaged in the airport services and airport related services in Western part of Indonesia including Medan. The airport services in Medan are provided by PT. Angkasa Pura II branch office Kualanamu International Airport Medan.

### **1.17.5 Directorate General of Civil Aviation**

The Directorate General of Civil Aviation (DGCA) is the organization under the Ministry of Transportation that responsible in formulating policy and standard regarding the civil aviation in Indonesia.

The DGCA issued Advisory Circular (AC) 170-02: Manual of Air Traffic Services Operational Procedures as a guideline to the Air Traffic Services (ATS) personnel (air traffic controller and flight information services officer) to perform the duty. Although the procedures are mainly directed to air traffic services personnel, flight crews should be familiar with the procedures contained in the following chapter of the AC 170-02.

### **1.17.6 Advisory Circular 170-02: Manual of ATS Operational Procedures**

#### **CHAPTER 4. GENERAL PROVISIONS FOR AIR TRAFFIC SERVICES**

##### **4.5 Air Traffic Control Clearances**

###### **4.5.7 Description of air traffic control clearances**

###### **4.5.7.5 Read-Back of Clearances**

*4.5.7.5.1 The flight crew shall read back to the air traffic controller safety-related parts of ATC clearances and instructions which are transmitted by voice. The following items shall always be read back:*

- a) ATC route clearances;*
- b) clearances and instructions to enter, land on, take off from, hold short of, cross, taxi and backtrack on any runway; and*
- c) runway-in-use, altimeter settings, SSR codes, level instructions, heading and speed instructions and, whether issued by the controller or contained in automatic terminal information service (ATIS) broadcasts, transition levels.*

*4.5.7.5.1.1 Other clearances or instructions, including conditional clearances, shall be read back or acknowledged in a manner to clearly indicate that they have been understood and will be complied with.*

*4.5.7.5.2 The controller shall listen to the read-back to ascertain that the clearance or instruction has been correctly acknowledged by the flight crew and shall take immediate action to correct any discrepancies revealed by the read-back.*

#### **CHAPTER 12. PHRASEOLOGIES**

##### **12.1 COMMUNICATIONS PROCEDURES**

###### **12.2 GENERAL**

*12.2.7 Conditional phrases, such as “behind landing aircraft” or “after departing aircraft”, shall not be used for movements affecting the active runway(s), except when the aircraft or vehicles concerned are seen by the appropriate controller and pilot. The aircraft or vehicle causing the condition in the clearance issued shall be the first aircraft/vehicle to pass in front of the other aircraft concerned. In all cases a conditional clearance shall be given in the following order and consist of:*

- a) identification;*
- b) the condition;*

- c) the clearance; and
- d) brief reiteration of the condition,

for example:

“SAS 941, BEHIND DC9 ON SHORT FINAL, LINE UP BEHIND”.

*Note.— This implies the need for the aircraft receiving the conditional clearance to identify the aircraft or vehicle causing the conditional clearance.*

12.2.10 Examples of the application of the phraseologies may be found in the Manual of Radiotelephony (Doc 9432).

### 1.17.7 ICAO Document 9432: Manual of Radiotelephony

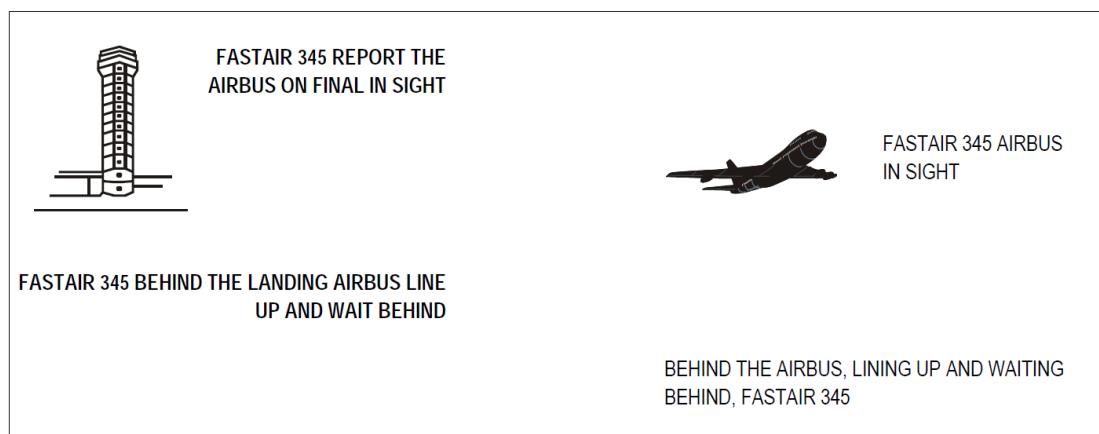
#### 2.8.3 Issue of clearance and read-back requirements

2.8.3.2 Controllers should pass a clearance slowly and clearly since the pilot needs to write it down and wasteful repetition will thus be avoided. Whenever possible, a route clearance should be passed to an aircraft before start up. In any case, controllers should avoid passing a clearance to a pilot engaged in complicated taxiing manoeuvres and on no occasion, should a clearance be passed when the pilot is engaged in line up or take-off manoeuvres.

2.8.3.3 An air traffic control (ATC) route clearance is not an instruction to take off or enter an active runway. The words “TAKE OFF” are used only when an aircraft is cleared for take-off, or when cancelling a take-off clearance. At other times, the word “DEPARTURE” or “AIRBORNE” is used.

2.8.3.4 Read-back requirements have been introduced in the interests of flight safety. The stringency of the read-back requirement is directly related to the possible seriousness of a misunderstanding in the transmission and receipt of ATC clearances and instructions. Strict adherence to read-back procedures ensures not only that the clearance has been received correctly but also that the clearance was transmitted as intended. It also serves as a check that the right aircraft, and only that aircraft, will take action on the clearance.

The following is the example of the application of the conditional clearance.



## **1.18 Additional Information**

The investigation is continuing and 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.

Investigation involving National Transport Safety Board (NTSB), United States of America that assigned accredited representative according to the ICAO Annex 13.

## **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.

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## 2 FINDINGS<sup>7</sup>

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

- The pilots of JT197 and IW1252 held valid licenses and medical certificates.
- The air traffic controllers held valid licenses, medical certificates and ICAO language proficiency level 4.
- The JT197 and IW1252 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 on JT197 and IW1252 prior to the accident.
- The IW1252 had problem with passenger baggage handling that delayed the departure.
- According to the filed flight plan, the flight was scheduled to depart at 0345 UTC. At 0354 UTC, the Flight Attendant (FA) of IW1252 advised to the IW1252 pilot that the boarding process has completed.
- The IW1252 was instructed to taxi to runway 23 follow U2 taxi route, which was from apron V to holding point runway 23 on taxiway C via taxiway U – T – and B. The IW1252 pilot requested to depart from intersection taxiway D and was approved by Medan Tower controller.
- The Medan Tower controller issued conditional clearance to IW 1252 to line up behind the landing aircraft. In addition, the issuance also combined with ATC route clearance.
- The read back of the conditional clearance from the IW1252 pilot was incomplete without correction from the Medan Tower controller.
- When landing clearance for the JT197 was issued by Medan Tower controller, the IW1252 pilot was still communicating with Medan Ground controller.
- The information of debris on runway has been informed to the Medan Ground controller by JT197 pilot and to Medan Tower controller by another departure aircraft pilot. Afterwards, there was one aircraft landed on runway 23 and then the runway was closed for debris removal.
- Refer to the AC 170-02, conditional clearance of “behind landing aircraft” shall not be used for movements affecting the active runway(s), except when the aircraft or vehicles concerned are seen by the appropriate controller and pilot.

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<sup>7</sup> 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.

- Refer to the AC 170-02, clearances or instructions, including conditional clearances, shall be read back or acknowledged in a manner to clearly indicate that they have been understood and will be complied with and the controller shall listen to the read-back to ascertain that the clearance or instruction has been correctly acknowledged by the flight crew and shall take immediate action to correct any discrepancies revealed by the read-back.
- Refer to the ICAO Document 9432, an air traffic control (ATC) route clearance is not an instruction to take off or enter an active runway. The words “TAKE OFF” are used only when an aircraft is cleared for take-off, or when cancelling a take-off clearance. At other times, the word “DEPARTURE” or “AIRBORNE” is used.

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### **3 SAFETY ACTION**

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

#### **3.1 AirNav Indonesia Branch Office Medan**

On 7 August 2017, issued circular to all air traffic controllers number CBKO.EDR.001/04/LPPNPI/08/2017 which contained the following instructions:

- Prohibit aircraft takeoff from Rapid Exit Taxiway (RET) intersection.
- Ensure Medan Tower controller to maintain continuously watch of all aircraft in vicinity of aerodrome.
- Avoid to give prolong instruction and clearance.
- Avoid the use of conditional clearance of “behind landing aircraft”.
- Shall read back and hear back every instruction and clearance.
- Shall implement the Standard Operation Procedure (SOP) of the Air Traffic Service (ATS).
- Shall familiar and implement procedure for handling emergency or abnormal situation.
- The ATC supervisor and ATS coordinator shall intensify their operational supervision.
- Improve the safety awareness.
- Prohibit the use of cellular phone during the duty.

#### **3.2 PT. Wings Abadi Airlines**

On 3 August 2017, issued notice to pilot number 42/NTP/OMIW/VIII/2017 which contained the following instruction:

- To keep Airmanship and Situational Awareness at high level in all phase of flight.
- Sterile Cockpit Procedures are implemented to ensure communications to or from the cockpit as well as communications within the cockpit are restricted to safety and operational related communications to avoid distracting the flight crew from full attention to aircraft maneuver and performance.
- All ATC clearance must be fully understood by both pilots before read back. If any doubt must be reconfirm to ATC.

On 5 August 2017, issued notice to pilot number 44/NTP/OMIW/VIII/2017 which contained the following instruction:

- Always (whenever possible) depart from the end of departure runways. Always avoid (whenever possible) depart from intersections.
- Always make a good look-around prior to entering or crossing runways.
- Always make a good listening, good understanding and good monitoring to ATC instructions.

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## 4 SAFETY RECOMMENDATIONS

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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:

### 4.1 AirNav Indonesia

- 04.A-2017-25.1

The issuance of conditional clearance of “behind landing aircraft” for the IW1252 was issued without prior clarification whether the approach aircraft has been seen by the IW1252 pilot and was issued with additional ATC route clearance. This condition was not in accordance with the AC 170-02 and the ICAO Document 9432.

KNKT recommends to ensure air traffic controller to comply with the requirement of the AC170-02 and the ICAO Document 9432 if the conditional clearance will be used.

- 04.A-2017-25.2

The read back of the conditional clearance by the IW1252 pilot was incomplete without correction from the Medan Tower controller. This condition was not in accordance with the AC 170-02.

KNKT recommends to ensure air traffic controller to listen to the read-back in order to ascertain that the clearance or instruction has been correctly acknowledged by the pilot and shall take immediate action to correct any discrepancies revealed by the read back.

- 04.A-2017-25.3

The information of debris on runway has been informed to the Medan Ground controller by JT197 pilot and to Medan Tower controller by another departure aircraft pilot. Afterwards, there was one aircraft landed on runway 23 and then the runway was closed for debris removal. The debris on the runway is a hazard for takeoff and landing aircraft.

KNKT recommends air traffic controller to ensure all hazard on the runway is properly mitigated without delay prior to issue takeoff or landing clearance.

### 4.2 PT. Wings Abadi Airlines

- 04.O-2017-25.4

The read back of the conditional clearance by the IW1252 pilot was incomplete without correction from the Medan Tower controller. This condition was not in accordance with the AC 170-02.

KNKT recommends all pilots to ensure clearances or instructions, including conditional clearances, shall be read back or acknowledged in a manner to clearly indicate that they have been understood and will be complied with.

- 04.O-2017-25.5

Refer to the ICAO Document 9432, an air traffic control (ATC) route clearance is not an instruction to take off or enter an active runway.

KNKT recommends to ensure all pilots shall understand and comply the air traffic controller instruction or clearance and to clarify when there is uncertain instruction or clearance.

## 5 APPENDICES

### 5.1 Circullar number CBKO.EDT.001/04/LPPNPI/08/2017 (AirNav Indonesia Branch Office Medan)



PERUM LPPNPI  
KANTOR CABANG MEDAN  
Gedung Menara Pengawas (Tower)  
Bandara Internasional Kualanamu  
Telp : (061) 50100860 Ext. 203  
Fax : (061) 50100912  
Email: airnav\_medan@yahoo.com  
Website: www.airnavindonesia.co.id

Kepada Yth.:

1. Personil ATC;
2. Supervisor ATC;
3. ATS Operation Coodinator.

#### EDARAN

NOMOR : CBKO.EDR.001/04/LPPNPI/08/2017

#### TENTANG

Rekomendasi Keselamatan Kejadian Runway Incursion LNI197 (B739/PK-LJZ) Dengan WON1252 (ATR72/PK-WFF) Tanggal 03 Agustus 2017 di Unit ATS Medan

1. Mengacu pada arahan Direktur Operasi Perum LPPNPI, perihal Runway Incursion WON1252 dan LNI197 tanggal 03 Agustus 2017 di Bandara Internasional Kualanamu.
2. Terkait butir 1 (satu) tersebut di atas, disampaikan kepada seluruh personil ATC, Supervisor ATC dan ATS Operation Coordinator untuk dapat melakukan hal-hal sebagai berikut:
  - a. Para ATC untuk tidak mengizinkan pesawat take off dari intersection **Rapid Exit Taxiway / RET** karena pada posisi tersebut, pilot yang akan take off tidak dapat melihat final area.
  - b. ATC Tower dalam memandu pesawat **wajib** melihat dan memperhatikan vicinity of aerodrome (runway, taxiway, final downwind, base leg if any, and apron apabila pelayanan saat ini masih diberikan oleh ATC, meskipun untuk pergerakan di Apron menjadi tanggung jawab AMC).
  - c. Hindari pemberian instruksi yang panjang (instruksi borongan) kepada Pilot (karena hazard / sulit di read back dan mengurangi konsentrasi Pilot).
  - d. Hindari phraseology after traffic on final landing passing line up behind (terlalu panjang dan dapat menyebabkan missunderstanding apalagi kalau instruksi lebih dulu dari informasi), gunakan saja.....hold on short.
  - e. Read back dan hear back **wajib** dilakukan.
  - f. Agar semua Crew ATS pelajari dan pahami SOP dan wajib direview bila sudah tidak sesuai dengan kondisi lapangan saat ini (Manajemen dan ATC Koordinator, Supervisor dan Pelaksana bersama-sama mereview SOP maupun LOCA).
  - g. Para ATC aktif (Pelaksana, Supervisor dan Koordinator), wajib mengetahui memahami dan menguasai prosedur emergency / abnormal situation (agar apabila terjadi kondisi tersebut para ATC dapat menanganinya dengan baik dan safety tetap terjaga).
  - h. Para Supervisor wajib ketat dalam mengawasi pelayanan lalu lintas penerbangan (terutama kepada para ATC yang baru rated) dan dapat mengelola para pelaksana dibawah tanggung jawabnya dalam shiftnya.



**AirNav Indonesia**

**PERUM LPPNPI**  
KANTOR CABANG MEDAN  
Gedung Menara Pengawas (Tower)  
Bandara Internasional Kualanamu  
Telp : (061) 50100860 Ext. 203  
Fax : (061) 50100912  
Email: airmav\_medan@yahoo.com  
Website:www.aimavindonesia.co.id

- i. Para ATS/ATC Koordinator wajib melakukan pengawasan operasional dengan observasi langsung ke unit-unit operasional dan tetap melaksanakan safety briefing kepada para Supervisor / Pelaksana sebelum dinas setiap shift.
- j. Tanamkan Safety Culture agar para ATC tetap memiliki Safety Awareness yang tinggi dan dapat mengidentifikasi hazard serta memitigasi hazard (Manager K3LK dan jajaran secara continue/berkala membantu dan memberikan sosialisasi bagaimana mengidentifikasi dan memitigasi hazard yang ada serta lebih ketat mengawasi jalannya operasional).
- k. General Manager dan jajarannya agar mengacak frekuensi/sinyal telepon seluler / hp di Tower, APP, FSS agar tidak dapat digunakan untuk berkomunikasi menggunakan hp dan sediakan locker tempat menyimpan hp.
- l. Proses koordinasi antara Tower dan APP dilakukan sesuai prosedur / SOP dan harus jelas diterima keduanya (terutama ketika change runway maupun abnormal situation).
- m. Pastikan para ATC tidak terpancing oleh pernyataan ataupun permintaan pilot namun tetap berdasarkan prosedur/separasi standard dalam memandu lalu lintas penerbangan.
- n. Saat pergantian shift, agar dilakukan dalam waktu yang cukup, sesuai SOP dan transfer of control **wajib** dilakukan sesuai standard.
- o. Agar para General Manager membuat usulan pemasangan CCTV disemua ruang control, untuk pengawasan dan kepentingan evaluasi kerja.

3. Demikian Surat Edaran ini dibuat untuk dapat dilaksanakan dengan sungguh-sungguh.

Dikeluarkan di : Deli Serdang  
Pada Tanggal : 07 Agustus 2017

## 5.2 Notice to Pilot Number 42/NTP/OMIW/VIII/2017 (Wings Air)

 <b>RUNWAY INCURSION PREVENTION</b>		NOTICE TO PILOT		
		NOTICE NUMBER	42/NTP/OMIW/VIII/2017	
DATE OF ISSUED	3 August 2017			
APPLICABILITY	ALL PILOT			
DATE OF EFFECTIVENESS	4 August 2017			
	DISTRIBUTION LIST	DO	SSO	DR
	OMPATR	OT		

**Dear Pilots,**

This is to inform you about Accident happened on Thursday 3 August 2017 at 0350 UTC in Kualanamu Airport (KNO) involving PK-WFF ATR 72-500.

The runway incursion occurred when PK-WFF was taxiing to line up Runway 23. During lining up, another traffic was commanding landing on the same runway which resulted in collision of both aircraft.

Both aircraft suffers major damage on the wing area, due to collision of each other's wing tip.

This notification is also to remind all Pilot :

1. To keep Airmanship and Situational Awareness at high level in all phase of flight.
2. Sterile Cockpit Procedures are implemented to ensure communications to or from the cockpit as well as communications within the cockpit are restricted to safety and operational related communications to avoid distracting the flight crew from full attention to aircraft manouver and performance (OMA 8.3.1.4).
3. All ATC Clearance must be fully understood by both Pilot before read back. If any doubt must be reconfirmed to ATC (OMA 8.3.3.2.3)

**Fly Safe !**

### 5.3 Notice to Pilot Number 42/NTP/OMIW/VIII/2017 (Wings Air)

		NOTICE TO PILOT		
		NOTICE NUMBER	44/NTP/OMIW/VIII/2017	
<b>DEPART FROM THE END OF DEPARTURE RUNWAYS</b>	DATE OF ISSUED	05 August 2017		
	APPLICABILITY	ALL WINGS AIR PILOTS		
	DATE OF EFFECTIVENESS	06 August 2017		
	DISTRIBUTION LIST	DO	DS	SSQ
		OMPATR	OR	OT
<p><b>Dear Pilots,</b></p> <p>Based on incident on Thursday, August 3<sup>rd</sup>, 2017 in Kulanamu International Airport involving Wings Air's ATR 72-500 PK-WFF and Lion Air's Boeing 737, it is <b><u>STRONGLY RECOMMENDED</u></b> to all Wings Air Pilots to:</p> <ol style="list-style-type: none"> <li>1. Always (whenever possible) depart from the end of departure runways. Always avoid (whenever possible) depart from intersections.</li> <li>2. Always make a good look-around prior to entering or crossing runways.</li> <li>3. Always make a good listening, good understanding and good monitoring to ATC instructions.</li> </ol> <p><b>Fly safe!</b></p>				

**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](mailto:knkt@dephub.go.id)