



**KOMITE NASIONAL KESELAMATAN TRANSPORTASI  
REPUBLIC OF INDONESIA**

**FINAL**

**KNKT.16.05.10.04**

**Aircraft Serious Incident Investigation Report**

**PT. Lion Mentari Airlines**

**Airbus A330; PK-LEF and Boeing 737-800; PK-LJR**

**Soekarno–Hatta International Airport**

**Republic of Indonesia**

**1 May 2016**

**2018**

This Final 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 investigation carried out by the KNKT in accordance with Annex 13 to the Convention on International Civil Aviation, the Indonesian Aviation Act (UU No. 1/2009) and Government Regulation (PP No. 62/2013).

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Jakarta, September 2018

**KOMITE NASIONAL  
KESELAMATAN TRANSPORTASI  
CHAIRMAN**



**SOERJANTO TIAHJONO**

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## ABBREVIATIONS AND DEFINITIONS

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|        |   |   |
|--------|---|---|
| AOC    | : | Aircraft Operator Certificate                   |
| ATPL   | : | Aircraft Transport Pilot Licence                |
| C of A | : | Certificate of Airworthiness                    |
| C of R | : | Certificate of Registration                     |
| CPL    | : | Commercial Pilot Licence                        |
| PIC    | : | Pilot in Command                                |
| SIC    | : | Second in Command                               |
| UTC    | : | Universal Time Coordinate                       |
| KNKT   | : | <i>Komite Nasional Keselamatan Transportasi</i> |

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## SYNOPSIS

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On 1 May 2016, a Boeing 737-800 aircraft registered PK-LJR was being operated by PT. Lion Mentari Airlines. The aircraft parked at parking stand A33 of Soekarno-Hatta International Airport, Jakarta and prepared to continue the flight to Manado as LNI770.

At 1150 UTC (1850 LT), it was dusk light condition, the LNI770 aircraft pushed back from parking stand A33 heading to taxiway SC3. The pilot aware that their position was behind an Airbus A330 aircraft that was pushing back from parking stand K13 and also heading to taxiway SC3.

The Airbus A330 aircraft registered PK-LEF was being operated by the same company as a schedule passenger flight with flight number LNI026 from Jakarta with intended destination of Ngurah Rai International Airport, Bali. At 1151 UTC (1851 LT), the LNI026 aircraft pushed back heading to taxiway SC3 was about to start the engines.

Weather condition at that time was fine and the ground visibility was nine kilometers.

During taxi, the LNI770 pilot deviated to the right from the taxi guideline with intention to avoid collision with LNI026. When the LNI770 aircraft position was abeam LNI026 the LNI770 pilot felt the aircraft shaking and heard unusual sound.

At that time, the LNI026 pilot just completed engine starting and felt the aircraft shaking. The pilots check engine parameters were normal and observed that the LNI770 aircraft was taxiing on the right side at position that was very close to the LNI026 aircraft.

The LNI026 pilot by hand signal, requested the ground personnel to reconnect ground communication device. After connected, the ground personnel inform that the right wing of LNI026 aircraft collided with LNI770. The LNI026 pilot then informed the Soekarno-Hatta ground controller that the LNI026 aircraft collided with LNI 770.

At 1159 UTC, the ground controller advised the LNI770 pilot to stop the taxi. The LNI770 aircraft position was on taxiway SCX.

Both aircraft returned to the parking stands and cancelled the flight. No one injured as result of this occurrences.

The investigation concerns to several safety issues related to the ground collision between the LNI770 and LNI026 aircraft that was on static condition. The aircraft movement analysis was based on communication between the air traffic controller, information from interview and the damage to the aircraft. The aircraft serviceability was considered not related to the event and will not be analyzed.

The investigation concluded the contributing factor of the serious incident was:

The time pressure to arrive at the destination prior to the end of operating hour led to rush situation resulted in mis-judgment while making separation and the wings collided.

Following the investigation, the Komite Nasional Keselamatan Transportasi (KNKT) issues safety recommendations addressed to the PT. Lion Mentari Airlines.

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# 1 FACTUAL INFORMATION

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## 1.1 History of the Flight

On 1 May 2016, a Boeing 737-800 aircraft registered PK-LJR was being operated by PT. Lion Mentari Airlines. The aircraft parked at parking stand A33 of Soekarno-Hatta International Airport, Jakarta<sup>1</sup> and prepared for the flight to Manado as LNI770.

The schedule flight at the day of occurrence for the crew of PK-LJR was Jakarta-Pangkal Pinang-Jakarta-Manado and overnight at Manado. The departure of the first sector of flight from Jakarta to Pangkal Pinang was delayed for approximately one hour and 30 minutes due to late arrival of aircraft from previous sector. Other than the delay, the flight of first two sectors were uneventful.

After returned from Pangkal Pinang, the crewmember prepared to continue the flight to Manado as LNI770. The PIC aware that the operating hour of Manado airport was up to 1500 UTC, and considering the flight time from Jakarta, they should be depart immediately. The PIC advised the cabin crew not to clean the aircraft and prepared the next flight quickly. The flight operational documents such as load sheet and fuel uplift were received late by the pilot.

At 1150 UTC<sup>2</sup> (1850 WITA), it was dusk light condition, the LNI770 aircraft pushed back from parking stand A33 heading to taxiway SC3. The pilot aware that their position was behind an Airbus A330 aircraft that was pushing back from parking stand K13 and also heading to taxiway SC3.

The Airbus A330 aircraft registered PK-LEF was being operated by the same company as a schedule passenger flight with flight number LNI026 from Jakarta with intended destination of Ngurah Rai International Airport, Bali. At 1151 UTC, the LNI026 aircraft pushed back heading to taxiway SC3 was about to start the engines.

Weather condition at that time was fine and the ground visibility was nine kilometers.

At 1154 UTC, the LNI770 pilot requested taxi clearance and Soekarno-Hatta Ground controller confirmed whether LNI770 pilot able to taxi via main apron Alpha to taxiway SCX then proceed to taxiway SP2. The LNI770 pilot replied that they able to taxi via the described taxi routes. Thereafter, the Soekarno-Hatta Ground controller issued taxi clearance.

During taxi near the LNI026, the LNI770 pilot deviated to the right from the taxi guideline with intention to avoid collision. When the LNI770 aircraft position was abeam LNI026 the LNI770 pilot felt the aircraft shaking and heard unusual sound.

At that time, the LNI026 pilot just completed engine starting and felt the aircraft shaking. The pilots check engine parameters were normal and observed that the LNI770 aircraft was taxiing on the right side at position that was very close to the

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<sup>1</sup> Soekarno-Hatta International Airport, Jakarta will be named as Jakarta for the purpose of this report.

<sup>2</sup> The 24-hour clock used in this report to describe the time of day as specific events occurred is in Coordinated Universal Time (UTC). Local time that be used in this report is Waktu Indonesia Tengah (WITA) or Central Indonesia Standard Time which is UTC +8 hours.

LNI026 aircraft.

The LNI026 pilot by hand signal, requested the ground personnel to reconnect ground communication device. After connected, the ground personnel inform that the right wing of LNI026 aircraft collided with LNI770. The LNI026 pilot then informed the Soekarno-Hatta Ground controller that the LNI026 aircraft collided with LNI 770.

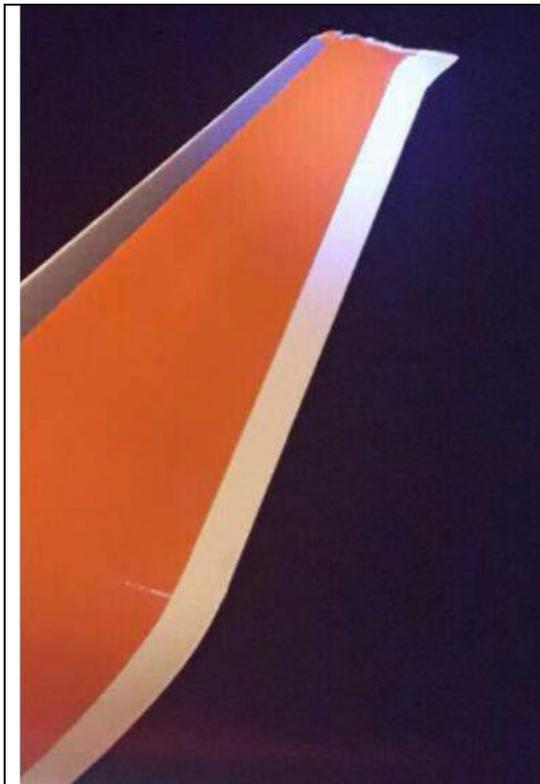
At 1159 UTC, the ground controller advised the LNI770 pilot to stop the taxi. The LNI770 aircraft position was on taxiway SCX. The LNI770 pilot requested to return to the gate to inspect the left wing condition.

Both aircraft returned to the parking stands and cancelled the flights. No one injured as result of this occurrences.



**Figure 1: illustration of the aircraft movement (not to scale)**

Both aircraft had minor damage. The tip of left winglet of LNI770 was cut off. The lower right wing LNI026 dent and scratch at approximately two meters from the wingtip.



**Figure 2: LNI770 left winglet cut off**



**Figure 3: Dent on the right wing lower surface of LNI026**

## **1.2 Personnel Information**

### **1.2.1 LNI 770**

#### **1.2.1.1 Pilot in Command**

The Pilot in Command (PIC) was Indonesian pilot held valid Airline Transport Pilot License (ATPL) and medical certificate.

The PIC joined the company since 2007 and had approximately 4,000 hours flying experience on the aircraft Boeing 737. Pilot in Command

#### **1.2.1.2 Second in Command**

The Second in Command (SIC) was Indonesian pilot, held valid Commercial Pilot License (CPL) and valid first class medical certificate.

The SIC joined the company since 2013 and had approximately 2,000 hours flying experience on the aircraft Boeing 737.

### **1.2.2 LNI 026**

#### **1.2.2.1 Pilot in Command**

The Pilot in Command (PIC) was Indonesian pilot, held valid ATPL and first class medical certificate.

The PIC joined the company since 2005 and had approximately 480 hours flying experience on the aircraft Airbus 330.

#### **1.2.2.2 Second in Command**

The Second in Command (SIC) was Indonesian pilot, held valid CPL and medical certificate.

The SIC joined the company since 2013 and had approximately 320 hours flying experience on the aircraft Airbus 330.

### **1.3 Organizational and Management Information**

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

Lion Air operated total of 116 aircrafts consisting of 3 Airbus A330, 35 Boeing 737 - 800, 70 Boeing 737-900ER, and 8 Boeing 737 MAX, which served more than 120 destinations, domestic and international, and operated up to 630 flights daily.

### **1.4 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 ANALYSIS

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The investigation concerns to several safety issues related to the ground collision between the LNI770 and LNI026 aircraft that was on static condition. The aircraft movement analysis was based on communication between the air traffic controller, information from interview and the damage to the aircraft. The aircraft serviceability was considered not related to the event and will not be analyzed.

The arrival of LNI770 in Jakarta was delayed accumulated from previous flights. Considering the operating hour of Manado airport and the flight time to Manado, the PIC advised to the cabin crew to speed up the cabin preparation. This indicated that the PIC was in rush and time pressure for departure to arrive at Manado Airport before the operating hours ended.

During push back, the pilot of LNI770 observed an Airbus A330 aircraft, LNI026 that was pushing back from parking stand K13 and headed to SC3. The LNI026 aircraft was on the taxiway that was the route for LNI770.

Prior to issue the taxi clearance, Soekarno-Hatta Ground controller confirmed whether the LNI770 pilot able to taxi via another route which were via main apron Alpha to taxiway SCX then proceed to taxiway SP2, in order to avoid the LNI026 aircraft. The LNI770 advised that they were able to taxi follow the assigned taxiway. This decision might have been influenced by the time pressure to arrive at the destination prior to the end of the airport operating hours.

While taxiing, the LNI770 pilot deviated to the right from the taxi guideline with intention to avoid collision with LNI026. The LNI770 pilot might also considered the possibility of collision with an aircraft that was parked on the right side. In this narrow area, there was no ground assistance provided to the pilot. The SIC of the LNI770 seated on the right cockpit seat was unable to observe the left-wing separation, therefore could not assisted the PIC to adjust the separation. The LNI770 and LNI026 aircraft collided.

Based on the damage of the LNI026 that found scratch about 2 meters from the wing tip, indicated that both aircraft wings overlapping at about 2 meters where the left wing of LNI770 was under the right wing of LNI026. This overlap indicated mis-judgement of the pilot while adjusting the separation.

The mis-judgement might be affected by the dusk lighting condition that might increase the difficulty for the pilot to judge the distance, even though the visibility was not a factor.

The condition of the pilot in rush in order to arrive at the destination before the end of the operating hours might also affected the ability to process all available information.

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## 3 CONCLUSIONS

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### 3.1 Findings<sup>3</sup>

1. Both aircraft had valid Certificate of Airworthiness (C of A) and Certificate of Registration (C of R). Aircraft serviceability considered not related to the occurrence.
2. All flight crews held valid licenses and medical certificates.
3. The LNI770 flight had been delayed and considered the operating hour of Manado Airport and the flight time from Jakarta to Manado, the PIC was in rush and time pressure for departure to arrive at Manado Airport before the operating hours ended .
4. The LNI770 pushed back from parking bay A33 and the LNI026 pushed back from parking bay K13, both aircraft heading to SC3, while the LNI026 was in front of LNI770. After pushed back, the LNI770 pilot aware to the position of LNI026.
5. Weather condition at that time was fine and the visibility was nine kilometers.
6. Prior to issue the taxi clearance, the controller confirmed to the LNI770 pilot whether able to taxi via another route, in order to avoid the LNI026 aircraft. The LNI770 pilot advised that they were able to taxi follow the assigned taxiway.
7. During taxi, the LNI770 pilot deviated to the right from the taxi guideline with intention to avoid collision with LNI026 which was on the left side.
8. There was no ground assistance provided to the pilot.
9. The damages on both aircraft indicated that both aircraft wings overlapping at about 2 meters. This indicated mis-judgement of the pilot while making separation.
10. The mis-judgement might be affected by the dusk lighting condition that might increase the difficulty for the pilot to judge the distance, even though the visibility was not a factor.
11. The condition of the pilot in rush in order to arrive at the destination before the end of the operating hours might also affected the ability to process all available information.

### 3.2 Contributing Factors<sup>4</sup>

The time pressure to arrive at the destination prior to the end of operating hour led to rush situation resulted in mis-judgment while making separation and the wings collided.

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<sup>3</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.

<sup>4</sup> Contributing factors is defined as events that might cause the occurrence. In the case that the event did not occur then the accident might not happen or result in a less severe occurrence.

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## **4 SAFETY ACTION**

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The Komite Nasional Keselamatan Transportasi had been informed of safety actions taken by PT. Lion Mentari Airlines resulting from this occurrence.

On 9 May 2016, issued internal investigation report and recommend the flight operation directorate to:

- Prohibited the aircraft taxi out from parking stand A11 – A43 to taxiway SP2 via apron A when an aircraft was being pushed back or stop between parking stand K11 and K14.
- Create procedure for operation control center to be more anticipative of the delay occurrence and limited airport operating hours by such as:
  - Assign new set of the aircraft and crew, or
  - Coordinate with related airport operator for operating hour extension.
- Avoid a condition that brings the flight crew turn into time pressure situation.

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## **5 SAFETY RECOMMENDATIONS**

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*Komite Nasional Keselamatan Transportasi (KNKT)* acknowledged the safety actions taken by the aircraft operators however, there still remain safety issues that need to be considered. Therefore, the KNKT issues the following safety recommendation addressed to PT. Lion Mentari Airlines.

- **04.O-2018-10.4**

The aircraft LNI770 was taxi in the narrow area and no ground assistance provided to the pilot, therefore KNKT recommends to consider to stop or request ground assistance during taxi in narrow area.

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